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MECHANICAL ENGINEERING

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OF MECHANICAL ENGINEERS

MARCH 1920

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29 WEST 39TH STREET, NEW YORK, U.S.A.

Coming Section Meetings

Atlanta Section.

March 23: At the Carnegie Library Reading Room.

Subject: Ball Bearings Applied to General Power Transmission, by W. H. Holby.

Baltimore Section.

March 3: Reinforced-Concrete Design and Construction, Past and Present, by Ernest P. Goodrich, Consulting Engineer, New York City.

March 10: Railroad Grade-Crossing Elimination, by Samuel T. Wagner, Chief Engineer, Philadelphia and Reading Railroad, Philadelphia, Pa.

March 17: The Commercial Side of Engineering, by Commander Walter M. McFarland, Manager, Marine Department, Babcock & Wilcox Co., New York City.

March 24: Engineering and Construction Organization for Rapid Work, by I. W. McConnell, Vice-President, Dwight P. Robinson & Co., New York City.

March 31: (To be announced).

These lectures, which are to be given in connection with the J. E. Aldred course on engineering practice, will be held on Wednesday afternoons at 4:15 o'clock on the dates given, in the auditorium of the Civil Engineering Building of the Johns Hopkins University.

Boston Section.

March 30: Eleventh Annual Dinner of the Engineers of Boston and vicinity at the Boston City Club sponsored by the Boston Sections of the A.S.M.E., A.I.E.E., and the Boston Society of Civil Engineers. Paul Cravath, an attorney of New York, will address the gathering on Some Economic Aspects of the Treaty of Paris. Dean Roscoe C. Pound, Harvard Law School, will speak on Social Engineering. It is expected that the Presidents of the National Societies will be in attendance. All engineers and associates of engineers are cordially invited.

Cleveland Section.

March 22: In the rooms of the Cleveland Engineering Society, Hotel Statler.

Subject to be announced.

Luncheons are served daily to members and guests (ladies invited) in the dining room of the Cleveland Engineering Society, Hotel Statler.

Colorado Section.

March 26: Colorado's Development and the Engineer, by Professor L. D. Crain, State Agricultural College, Fort Collins, Colo.

New Haven Branch.

March 17: Branch Meeting at the Mason Laboratory, Yale University.

Subject: Research at the Mason Laboratory. Professor W. K. Shepherd on Properties of Materials, and Professor E. H. Lockwood on Results of Friction Tests on Pneumatic Tires, etc.

Indianapolis Section.

Every Thursday Luncheon Meeting at the Scientech Club.

New Orleans Section.

March 8: At the Louisiana Engineering Society, Subject to be announced.

New York Section.

March 9: At the Engineering Societies Building. Symposium on The Application of Heat in Industrial Processes. Speaker to be announced.

Minnesota Section.

March 1: Subject, time and place to be announced.

Philadelphia Section.

March 23: At the Philadelphia Engineers' Club.

Subject: Safeguards in Industrial Plants, by L. A. de Blois, Safety Engineer, E. I. du Pont de Nemours & Co.

St. Louis Section.

March 19: At the Hotel Statler. Joint meeting of the Associated Engineering Societies of St. Louis.

Subject: Different Processes in the Manufacture of a Heine Boiler, by F. O. Pahlmeyer, Engineer, Heine Safety Boiler Co.

Worcester Section.

March: At Worcester Polytechnic Institute.

Subject: A Trip Through the Bureau of Standards, Washington, D. C., by Dr. S. W. Stratton. Date to be announced.

San Francisco Section.

Every Thursday at the San Francisco Engineers' Club; luncheon meeting.

SOCIETY AFFAIRS

Secretary's Letter—War Service and Members' Memorial—Report of the U. E. S. for 1919—Review of Engineering Council Activities for 1919—A. S. M. E. Council in Session for Two Days—Aims and Organization Report in Effect—Necrology—Personals—Employment Bulletin—Candidates for Membership

Interdependence of Countries and Professions

The Secretary's Letter

WHAT has been accentuated by the World War is the interdependence of associations of human beings. The interdependence of nations was never so evident in the history of the world as now. There are numerous evidences of the interdependence of men in professional work, not only in the major branches of medicine, law, chemistry and engineering, but also of the many divisions of these professions.

It is to be expected, therefore, that the much-to-be-desired concerted action of all members of the engineering and its allied professions, including, I hope, the architects and chemists, will shortly be an actual fact, and you will be gratified to learn that at the Joint Meeting of the Boards of Government of the Four National Engineering Societies, the Engineering Council and the United Engineering Society, the American Society for Testing Materials being represented in Engineering Council, it was voted to approve in principle the recommendations in the report of the Joint Conference Committee and to authorize that Committee to summon immediately a conference which would be attended by representatives of all the leading national and local engineering societies. An account of this meeting is published in Section One of this issue.

INTERDEPENDENCE OF COUNTRIES

We have our part to perform as citizens of the United States and as members of a profession are ambitious that that profession shall be eminent for good works.

When the call came from the Ministers of Public Works of France and of Devastated Regions of that country for advice in reconstruction and rehabilitation, the Engineering Societies sent their most respected and accomplished representatives. You will remember we sent our own President then in office, Mr. Charles T. Main, who offered to make the great sacrifice of absenting himself from the Annual Meeting concluding his term of office. Fortunately the steamer on which the engineering party was to sail was delayed until after the Annual Meeting. As a result of this visit, a permanent Franco-American Engineering Committee has been appointed of which, obviously, Mr. Main is a member. Our other representative is Mr. George W. Fuller, also one of the members of the group that went to France.

It has been an activity of your secretary, long before he became Secretary, to develop cordial relations with eminent engineers in other countries, and it is natural that he should continue to be interested, appreciating as he does how directly they contribute to the work of this Society and of the engineering profession.

The Secretary has been active in Pan-American Scientific Congresses and Conferences, also in the International Engineering Congress of 1915. Learning recently of the prospective visit of a large delegation from Switzerland, he has been in contact with the Minister from Switzerland, the Honorable Hans Sulzer, and is happy to report that a considerable group will visit our country and that we shall maintain the headquarters of our Society at the disposal of these friends. An official statement appears in the Council Notes in this issue.

The Secretary would be pleased to learn what members of the Society are interested in this phase of the Society's work in assisting in the general development of cultural relations, and who

would join in receiving visitors from abroad and assisting them to obtain information about our country.

Such work cannot fail to harmonize differences throughout the world and help to bring about the more stable conditions which we all desire.

CALVIN W. RICE,
Secretary.

St. Louis Preparing Fine Program for Spring Meeting—Reserve Dates of May 24-27

The Spring Meeting of the Society is to be held at St. Louis May 24 to 27, opening on Monday of the week of the convention and closing on Thursday. St. Louis is an ideal convention city, combining the industrial tendencies of the North with Southern hospitality, and it is adequately equipped with hotel facilities, convention halls and points of attraction to take care of large gatherings.

It is one of the largest distributing points on the Mississippi River and as a result of the recent movement toward greater transportation facilities on the river and the construction at St. Louis of a 900-foot dock, a start has been made to make this city a port for foreign trade with water transportation, displacing to a considerable extent the more expensive transportation by rail to ports on the Atlantic Coast.

One of the first two Sections of the Society to be formed away from New York was organized in St. Louis, and the members of this Section, always interested and active in Society affairs, have long waited for an opportunity to entertain the membership. Upon announcement that the invitation to hold the next Spring Meeting at St. Louis had been accepted, a local convention committee was at once formed and the members have for some time had plans for the meeting well developed and an entertainment program outlined which is sure to attract an unusually large attendance.

Papers for the Spring Meeting should be sent to Society headquarters not later than March 15 in order to insure acceptance by the Committee on Meetings and Program and publication in advance of the meeting. Abstracts of certain of the papers are now being published in *MECHANICAL ENGINEERING* and it is expected that the remainder will appear in the April and May numbers, together with a tentative program and other information which will be of interest to those expecting to attend the meeting.

The Dues of Members in Active Service During the War

The Council in its discretion remitted the dues of any members of the Society engaged in military or any other patriotic service in the United States.

The By-Law covering this remission specified that it should remain in effect during the continuation of the War, and for a certain period thereafter. The Council has now voted that this period should terminate on January 1, 1920, except in cases of men who remained over-seas after this date and for these men it should terminate upon their return to this country and their discharge from the Service.

Advices are that all over-seas men are now back and therefore the remission of dues to members in the Service is now virtually ended.

Society Membership in Other Organizations

At the meeting on December 5, the Council received the recommendation of the Special Committee reporting on the advisability of the Society continuing membership in the National Industrial Conference Board and making general recommendations regarding membership of the Society in any other society or organization. The report follows:

It is the unanimous opinion of your Committee that for the Council to acquire membership for the Society, in any other Society or organization, such as Chambers of Commerce, or the National Industrial Conference Board, is inadvisable, and we recommend that the Society withdraw from all such memberships.

Your Committee does not mean by this to criticize any other association or society, but believes that the dues collected from our members should be expended exclusively in activities carried on by the Society under its control.

We further recommend that if practicable to arrange for it, either through the Journal of the Society or otherwise, the results of investigations made by the National Industrial Conference Board should be made known to all our members whenever such investigations are likely to interest them.

CHAS. L. NEWCOMB,
HENRY B. SARGENT,
L. E. STROTHMAN,
W. S. RUSSELL,
FRED J. MILLER, *Chairman.*

Society of Automotive Engineers' Sections Policy

During the year 1919 the Sections Committee of the Society of Automotive Engineers decided on several changes of policy for conducting this activity which may be of interest.

The Committee secured the adoption, by the Council, of a manual for use in carrying out details of office work and procedure in meetings.

It was decided to discontinue the enrolling of associates by the sections, as it was considered better to interest young men in sections localities in Junior membership in the society. This is quite a fundamental step, as it will be recalled that the Society of Automotive Engineers has encouraged and enrolled a large number of associates who presumably will be all invited to take out membership in the Society.

To make more accurate records of the sections possible and to relieve materially the burden upon the officers of the sections, the policy has been instituted by which sections maintain a paid assistant secretary on part or whole time.

There has been considerable discussion as to the advisability of discontinuing the provision for payment of sections dues, and it has been decided that under the present circumstances these dues shall be continued.

The entire efforts are in the direction of improving the integrity for interest in the sections which are quoted as being "the life blood of the Society."

Resolutions on Death of Mr. Wellman

The special Committee consisting of Mr. Ambrose Swasey, Capt. Robert W. Hunt and Mr. Charles F. Brush, appointed by the Council to prepare resolutions upon the death of Mr. Samuel T. Wellman, Past-President of the Society, made its report at the last meeting of the Council and the following resolutions were adopted and ordered spread upon the minutes of the Society:

WHEREAS, Death has taken from us our fellow member, Samuel Thomas Wellman, and

WHEREAS, Mr. Wellman was a member of this Society for thirty-eight years, having served as its President, contributing important papers to its meetings, and taking an active interest in all its work, and

WHEREAS, He, as one of the pioneers in American steel industry, was the inventor of many important mechanical appliances and methods, and contributed as much, if not more than any other man to perfect the processes employed in the manufacture of open hearth steel, and

WHEREAS, His simple, unostentatious life and Christian character were an inspiration to those who were brought into contact with him:

Resolved, That in the death of Mr. Wellman, the Society has lost

a strong and valued member; that those who knew him best have lost a firm and loyal friend; that the engineering world has lost a strong and original mind which would cope with and solve the difficult problems in the manufacture of steel;

Resolved, That Mr. Wellman's life as a man, and his career as an engineer and manufacturer, should be an inspiration to those who believe there is more to life than the mere attainment of individual success; and that it is the duty of every man to leave behind him, as did Mr. Wellman, something which has made the world better and contributed to the upbuilding of civilization.

Resolved, That these resolutions be spread upon the minutes of the Society, and that a copy be sent to the members of Mr. Wellman's family.

War Service and Members' Memorial

The American Society of Mechanical Engineers has every reason to be proud of the record of its members in doing their part to win the victory in the World War for the World's Liberty.

Besides those who served as civilians in various positions of commanding importance in the work of preparation and of supplying the needs of our own and the allied armies, some fourteen hundred members of our Society served in the military forces of the nation, over nine hundred of these as commissioned officers.

Those who know something of how a modern army is maintained in the field, will understand that members of this Society could generally render their best services behind the firing lines.

It was a full realization of this fact by those in control of our military operations that prevented most of our members from taking the part in the war that many would have preferred.

Whenever and wherever engineers were called upon for services involving danger they responded bravely and with a devotion fully equal to that of the bravest.

By special resolution at its Annual Meeting, and on recommendation of its Special Committee on War Service and Members' Memorial, consisting of Major Fred J. Miller, Chairman; Colonel J. J. Swan and Major William B. Gregory, the Society expressed its greatest appreciation of and pride in the services of its members named below who gave their lives that freedom might be preserved among the nations of the earth:

Name	Grade of Membership <i>In A. S. M. E.</i>	Rank in United States Army or Navy	
ANTOSCH, WALTER	Junior	Chief Machinist U. S. N. R. F.	Killed in action August 1918, Buried in Brest, France
BALDWIN, CHAS. M.	Assoc-Member	Lieutenant U. S. N. R. F.	Lost at sea March, 1919
BERGES, ARTHUR H.	Junior	Sergeant 23rd Engineers	Killed in action September, 1919.
BORNHORST, A. H.	Junior	Lieutenant Aviation	Died of pneumonia December, 1918.
COOKE, STANLEY S.	Junior	U. S. Coast Grd.	Lost on S.S. Tampa.
CORDES, PAUL H.	Assoc-Member	Lieutenant U. S. Coast Grd.	Killed in action September, 1918.
CULLEN, J. W.	Assoc-Member	Lieutenant	Died in August, 1919.
DUFFY, FRANK J.	Member	Lieut-Colonel	Killed in action August, 1918
EKSTRAND, CHARLES	Member	Lieutenant, U. S. N. R. F.	Died September, 1919.
FORD, JOHN D.	Member	Rear Admiral	Died April, 1919.
GUTTERAS, JULIAN	Junior	Captain, Engineers	Died of pneumonia, October, 1918.
HAYWARD, HENRY S.	Member	Lieutenant U. S. N. R. F.	Died of pneumonia, March, 1919.
HAZLEHURST, J. N.	Member	Major	Died in Brussels, February, 1919.
HORTON, ELIAS Q.	Junior	Ensign U. S. N. R. F.	Died March, 1919.
HOSKINS, STEPHEN P.	Junior	Lieutenant-Col. 319th Infantry	Killed in action in Aronne Forest.
KING, WM. R.	Member	Major, Ordnance Department	Killed at Aberdeen, Md. Died March, 1918.
LAMONT, CLARENCE B.	Member	Major, U. S. N. R. F.	Died March, 1918.
LYNCH, THOMAS H.	Assoc-Member	Major, Q. M. C.	Died of pneumonia, December, 1918.
MAY, OSCAR J.	Assoc-Member	Captain, Engrs.	Died, May, 1918.
PLANK, WILLIAM J.	Junior	Cadet	Died November, 1918.
REILLY, CHARLES J.	Assoc-Member		Killed in action, September, 1918.
SEED, CHARLES R.	Assoc-Member		Died of pneumonia, October, 1918.

These members have given to the cause of humanity "all that a man hath" and have bestowed upon our Society the light of undying glory. We shall cherish and revere their memory as long as the Society continues to exist.

To the friends and relatives of these members we have lost we extend our most heartfelt sympathy, and yet ask that in their sorrow they join with us in exaltation and holy pride that it has been given to them and to us to be related by blood or by professional ties to such men as these.

Awards to Be Developed

A Standing Committee on Awards and Prizes has been authorized by the Council to develop and administer the awards of the Society, including the Junior and Student Prizes, but excepting the John Fritz Medal, which is administered by a joint board of the Founder Societies.

The Special Committee on Relations with Colleges, acting as a Committee on Awards, last year presented a valuable report to the Council, published in the October issue of *MECHANICAL ENGINEERING*, which outlined a comprehensive scheme for the development of incentive to the members, especially the younger men, by providing for meritorious work and scholarships in engineering colleges.

Announcement will shortly be possible of an American Society of Mechanical Engineers' Medal of Merit to be awarded for notable achievement, and this will undoubtedly be followed by other awards.

The Society at present awards the Junior Prize of \$50 and an Engrossed Certificate to the Junior member who presents the best paper of the year ending June 30th, and two Student Prizes of \$25 each and Engrossed Certificates to those two registered members of Student Branches presenting the best papers of the year ending June 30th. Both these prizes were endowed by a prominent member. The Society also has in its gift a small sum of money donated by the late Admiral Melville, Past President of the Society, which is available for awards, and last year there was established what is known as the Charles T. Main Fund, named after Past-President Main, of \$2500, part of which was money voted to Past-President Main when he was appointed to go to France two years ago and which he returned to the Society, contributing the balance to make up the sum now being held.

Report of the United Engineering Society for 1919

A brief report of the activities of United Engineering Society for the year 1919 has just been issued by the retiring president, Charles F. Rand. It includes, in addition to a general statement of the Society's work and financial condition, brief reports of the accomplishments of the Engineering Societies Library, Engineering Council, and the Engineering Foundation. A review of the Library and the Engineering Foundation's work for 1919 was published in some detail in the February issue of *MECHANICAL ENGINEERING* (pp. 137 and 142), and elsewhere in this issue there appears a brief account of Engineering Council's accomplishments during 1919.

During the year the activities of the United Engineering Society and the Founder Societies were fully maintained, although the expenses for services and supplies were greatly increased.

The United Engineering Societies Building has been fully occupied throughout the year. The increasing requirements of the Founder Societies have made it necessary to request some of the associate societies to leave the building. Owing to increased costs it has become necessary to increase the assessments for offices and there has been established a slightly higher schedule of assessments for lecture halls.

The membership of the four Founder Societies is now 40,491, and that of the Associate Societies 22,564, a total of 63,055 engineers now having headquarters in one building.

Concerning the Engineering Societies Employment Bureau, it is reported that about 5400 men were registered during the year and about one-half of this number placed in positions, involving some 20,000 interviews and an equal number of pieces of mail. This Bureau, which was formerly connected with Engineering Council, now operates independently.

The John Fritz Medal Board of Award, composed of representatives of the four Founder Societies, awarded the medal for 1919 to General George W. Goethals for achievement as the builder of the Panama Canal. A detailed account of its presentation will be found in *MECHANICAL ENGINEERING* for July, p. 639.

With the presentation of the report, Mr. Charles F. Rand brings to a close six years of service as President and Trustee of

United Engineering Society. His administration has covered an interesting period. In this time the following events have come to pass:

The mortgage debt has been paid.

Engineering Foundation has been established.

Engineering Council has come into existence.

An Endowment Fund of \$100,000 has been secured for the Library.

The American Society of Civil Engineers has become a Founder Society and has merged its library with the others.

Three additional stories have been added to the building.

The depreciation and reserve funds have been set up and now amount to \$110,199.00.

The assets, which were \$1,687,808.48, with a mortgage indebtedness of \$88,000.00, have now become \$2,468,395.37, a gain of \$868,586.89.

A Review of Engineering Council Activities for 1919

During the year just past the activities of Engineering Council have been presented in considerable detail in the columns of *MECHANICAL ENGINEERING*. It is thought, however, that a brief summary of the Council's activities might be of interest and the following, based upon the chairman's report for the year, has accordingly been prepared.

A Washington Office with M. O. Leighton in charge was opened Jan. 1, 1919.

In February the American Society for Testing Materials completed qualifications as the fifth member society, and has since taken an active part in Council's work.

In April, Engineering Council called together in Chicago, representatives of seventy-four technical organizations having 105,000 members, to discuss an effort to secure a National Department of Public Works. To conduct and finance this movement, there was created a body now known as the National Public Works Department Association.

In September, Engineering Council became a member of the Chamber of Commerce, U. S. A.

A Committee on Classification and Compensation of Engineers, created in March, worked in three sections dealing with engineers in the employment of (1) Federal Government, (2) Railways, (3) Cities and States. In January, 1920, the committee issued its final report.

To expedite completion of topographical maps of the United States, President Wilson, in response to a communication from Engineering Council, by executive order, constituted a Board of Surveys and Maps, of one representative each from the fourteen map-making agencies of the Government, and invited representatives of Engineering Council and engineering and scientific societies to coöperate. The new board set up a permanent organization January 13, 1920.

The Committee on Licensing Engineers, after fourteen months' work, presented in December a valuable report accompanied by a "Recommended Uniform Registration Law, to regulate the practice of professional engineering, architecture and land surveying."

The Fuel Conservation Committee continued coöperation with the Government, and recommended support of a Federal appropriation for a survey to determine the desirability of a super-power system in the industrial region extending from Boston to Washington.

The Water Conservation Committee appointed correspondents in twenty-seven states, is seeking correspondents in other states, is collecting useful information, and is aiding the Maine Water Power Commission on questions of policy in response to a request from its chief engineer.

By public hearing, in January 1919, Engineering Council aided the reinstatement of 350 engineers unfairly dismissed by the City of New York. It also assisted late in the year in securing better salaries for these and other engineers and in preventing a recurrence of last year's unfortunate conditions.

Council took part in organizing a National Board for Jurisdictional Awards in the Building Industries, and has a member thereon.

Council also appointed three representatives to coöperate with equal numbers from the American Institute of Architects and the Associated General Contractors of America, to determine a policy regarding "Payment for Estimating."

Late in 1919, and in January 1920, committees were appointed on Types of Government Contracts, on Military Affairs, on Co-operation with the American Institute of Architects, and on co-operation with Association of Russian Engineers in America.

Council gave much assistance to the War Department Claims Board in securing technical experts to review reports on claims amounting to approximately two billion dollars.

A.S.M.E. Council in Session Two Days

First-Day Conference with Other Societies' Boards—Engineering Organization Discussed and Important Decision Reached—On Second Day Council Completes Lengthy Agenda—Adopts Aims and Organization Report

The Council was in session for two days in the month of January, the 23d and 24th. On the first day it met jointly with the governing boards of the other Founder Societies, the Trustees of the United Engineering Society and the members of the Joint Conference Committee of the Founder Societies, at the call of Engineering Council. On the evening of the first day and the whole of the second day the Council was in regular session.

The purpose of the joint meeting was to consider the broad question of organization of the engineering profession, and the basis of the discussion was the report of the Joint Conference Committee which was abstracted in the January issue of *MECHANICAL ENGINEERING*, having been discussed at our Annual Meeting and under discussion by the meetings of the other societies.

The joint meeting resulted in the adoption of this report and the passage of a resolution requesting the Joint Conference Committee to call without delay a conference of representatives of national, local, state and regional organizations to bring into existence a comprehensive organization of all the societies in this country.

At the same time actions were taken to strengthen the organization of Engineering Council and provide financial support for it for the time being. The work done by the National Public Works Department Association was also approved.

Our own Council commenced its regular January meeting in the evening and the following were present: President Fred J. Miller; Vice-Presidents Fred R. Low, Henry B. Sargent, John A. Stevens, John R. Allen, Robert H. Fernald; Past-Presidents D. S. Jacobus, I. N. Hollis, Charles T. Main, M. E. Cooley; Managers D. Robert Yarnall, Charles L. Newcomb, C. Russ Richards, Frank O. Wells, E. C. Fisher, E. F. Scott; Chairmen of Standing Committees, *Finance*, George N. Forrest; *Publications*, George A. Orrok; *Local Sections*, E. S. Carman; *Secretary*, Calvin W. Rice, and by invitation, A. M. Greene, Jr., E. B. Katte and L. P. Alford. The meeting adjourned from the evening session and continued all the following day.

Probably the most significant action taken was the adoption of the reports of the Committee on Aims and Organization and of the Joint Conference Committee of the Founder Societies. The features of the former were referred to the appropriate committees of the Society, with a request that they report back to the Council on the several recommendations. The adoption of the second report carried the authorization of the Society's representatives, Mr. L. C. Marburg, Prof. D. S. Kimball, Prof. L. P. Breckenridge and Mr. E. S. Carman, to take the necessary steps in conjunction with the representatives of the other societies to carry out the recommendations of the report.

The thanks of the Society are due to all those members representing the local sections who participated in the preparation

of the report of the Committee on Aims and Organization, a service which extended over a period of 16 months, and also to our representatives on the Joint Conference Committee.

Executive Committee. The Council chose Fred J. Miller, Chairman, Robert H. Fernald, Ira N. Hollis, D. S. Jacobus, Charles T. Main and Henry B. Sargent as its Executive Committee for 1920.

Visits of Foreign Engineers. The President was authorized to appoint committees to assist in receiving engineers from foreign countries visiting the United States. He announced that, through the Swiss Ministry, he had formally invited a Swiss Commission of Engineers and Economists to take part in our Spring Meeting at St. Louis.

Finance Committee. Because of the absence of the Treasurer on account of his health, the President was authorized to act for him in all matters, and notice was given on Amendment to the By-Laws to this effect.

Meetings and Program Committee. H. P. Fairfield, Fred E. Rogers and George E. Merryweather, were approved as additional members of the Subcommittee on Machine Shop Practice.

Membership Committee. The death of our Honorary Member, M. Anatole Mallet, was announced and suitable resolutions ordered prepared.

Local Sections Committee. On the recommendation of Mr. E. S. Carman, Chairman, the Cleveland plan of joint membership of the Cleveland Engineering Society and this Society was extended for one year.

An invitation to the Council from the Western Society of Engineers to meet in Chicago in April was accepted, as was also an invitation from the Baltimore Section to the Council to hold its February Meeting in that city on February 28.

Two slight amendments to By-Law B-49 governing Local Sections were presented. One was to change the term "Local Members," meaning non-members of the Society associated with Sections, to "Affiliates."

On the recommendation of this Committee a petition from the members in Pittsburgh for the establishment of a Section there was granted. The territory will include all towns within a thirty-mile radius.

Formal exchange of courtesies with the Engineers' Club of St. Louis was approved.

Nominating Committee. The following amendment to the By-Laws legalizing the Nominating Committee for 1920 was approved. "The nomination of the members of the Nominating Committee for the year 1920, made by the delegates of the local sections at their session commencing December 2, 1919, shall if unrevoked be a sufficient nomination of such committee by said delegates within the intendment of these By-Laws."

Further amendments to the By-Laws on the manner of selecting the Nominating Committee after 1920 and on the procedure of all Nominating Committees were presented for first reading. As soon as adopted, these amendments will be published in full in *MECHANICAL ENGINEERING*.

Standardization Committee. The Council approved and accepted sponsorship from the American Engineering Standards Committee on the four following committees: (a) Standardization of Spur, Bevel, Worm and Sprocket Gears, which is to be a joint committee with the American Gear Manufacturers Association; (b) Standardization of Ball Bearings, which is to be a joint committee with the Society of Automotive Engineers; (c) Standardization of Machine Tools, which is to be a joint Committee with the National Tool Builders Association; (d) Standardization of Cylindrical Limit Gages for General Engineering Work, and appointments on these committees were referred to the President with power.

Shafting Committee. The report of the Committee on Standardization of Sizes of Shafting was accepted and ordered printed, and the committee's request granted that it be allowed to reorganize with the approval of the President.

Boiler Code Committee. Interpretations Nos. 262 to 269 inclusive and 271 and 272 were approved and ordered printed as usual.

The revisions of the preliminary report on Boilers for Loco-

motives not subject to Federal Inspection or Control was approved.

A. M. Greene, Jr., Chairman, Wm. H. Boehm, E. R. Fish, Walter S. Finlay, Elbert C. Fisher, H. M. Hauser, D. S. Jacobus, M. W. Kellogg, Wm. F. Kiesel, Jr., I. E. Moulthrop, F. N. Speller, John A. Stevens, Chas. Van Stone, and James Aston, were approved as a Subcommittee on Specifications for Steam Piping.

The request of the Boiler Code Committee for permission to appoint a committee to confer with the American Welding Society on Rules in the Boiler Code concerning welding was adopted.

Relations with Colleges. A Rule was formulated to limit the establishment of Student Branches to those institutions giving a full four-year course in engineering and meeting the requirements of the Carnegie Foundation and being Class A colleges.

Committee on Awards. A Standing Committee on Awards and Prizes, to develop and administer the awards of the Society, including the Junior and Student prizes but excepting the John Fritz Medal, was authorized.

Committee on Committees. The report of this Committee, including important recommendations on the committee work of the Society, was adopted.

Professional Sections. The report of the Advisory Committee on Professional Sections, recommending procedure and also recommending the establishment of sections on Aeronautics, Cement, Fuel, Gas Power, Industrial Engineering, Machine Shop, Power, Railroads and Textiles, was adopted. An account of this new activity is published elsewhere in this issue.

Appointments. Ambrose Swasey, Robert W. Hunt, Charles F. Brush, were approved as a Memorial Committee to the late Mr. Samuel T. Wellman. Its resolutions are published elsewhere in this issue.

Frank T. Chapman was appointed to represent the Society at a Conference of the Society on Industrial Engineers' Committee on Elimination of Industrial Fatigue.

John R. Freeman and Jesse M. Smith were appointed Honorary Vice-Presidents to represent the Society at the inaugural meeting of the Indian Society of Engineers, at Calcutta, India.

L. P. Alford was appointed the Society's representative on Engineering Council to fill the vacancy caused by the resignation of George J. Foran, to whom a special letter of appreciation was ordered sent.

American Engineering Standards Committee. The admission of the National Safety Council, the National Fire Protection Association, the National Board of Fire Underwriters and the Associated Factory Mutual Fire Insurance Companies, as members of the American Engineering Standards Committee was approved.

Birthday of Mr. Edison. The Secretary was requested to send a message of congratulations to Mr. Thomas A. Edison, Honorary Member of this Society, on the occasion of his 73rd birthday, February 11th.

CALVIN W. RICE,
Secretary.

Aims and Organization Report in Effect

Sixteen Months' Work of Special Committee on Policy Satisfactorily Completed by Council Adopting Report in Toto

The report of the Special Committee on Aims and Organization appointed in the Fall of 1918 to study matters of policy and organization of the Society was approved and adopted by the Council at its January meeting, and a resolution was passed referring those recommendations in the report which applied to existing activities to the Committees in charge of them, with a request that these Committees report back to the Council on the recommendations concerning their work.

The virtual significance of this action is that representatives of the Local Sections of the Society have succeeded in placing in the hands of the Society's committees instructions regarding the scope and direction of the Society's work.

The report of this Committee on Aims and Organization was originally published in MECHANICAL ENGINEERING last July, together with discussion by the members of the Society assembled at the Spring Meeting in Detroit last June. The report was again discussed by the Society at the Annual Meeting in December last, prior to its final passage by the Council.

Drawing their conclusions regarding the final action from the two general discussions by the members of the recommendations of the report and from the sympathetic attitude of the Council regarding the recommendations, the Standing Committees of the Society have not been slow to sense the spirit behind this movement and have had the policies recommended under discussion for many months with the result that the final action turning the recommendations over to them, finds them ready to proceed. The extent to which the Committees have fallen into line may be judged from the following brief synopsis of the status of the several recommendations of the Aims and Organization Committee.

Adoption of Standards. Constitutional amendment to provide for approval and adoption of standards now being balloted on and will go into effect at Spring Meeting in May, if ballot is favorable. Therefore a year has been saved on this recommendation.

Professional Features of General Meetings. These recommendations concern tenure of office of Sub-committees on Meetings Committee and have been considered by the Special Committee on Committees, as announced in Council Notes in the January issue, page IV.

Research and Standardization. These recommendations have been referred to the Standing Committees on Research and on Standardization, respectively.

Those who have followed the department of Engineering Research conducted in MECHANICAL ENGINEERING during the past year by the Research Committee, will sense the development of this Committee's work in accordance with the new recommendation.

The question of standards has to be worked out now in connection with the American Engineering Standards Committee.

Industrial Engineering. Recommended that this be made a major subject. This recommendation is now receiving the earnest consideration of a special committee which is expected to report to the Council within two months.

Education and Special Training. Placed in the hands of the Committee on Relations with Colleges.

Professional Sections. See important announcement on this activity in this issue of MECHANICAL ENGINEERING. No time has been lost in acting on this recommendation.

Mechanical Engineering. The Committee on Publication and Papers has been allowed money from the Society's reserve account to develop MECHANICAL ENGINEERING and has been working along the lines recommended.

Transactions. The Committee on Publication and Papers has had the matter under consideration for some months, although it has not yet discovered a substitute for Transactions.

Hand Book on Mechanical Engineering Data. This is also under consideration, although prohibitive printing costs have discouraged immediate consideration of launching this activity.

Engineering Societies Employment Office. The Engineering Societies Employment Bureau has been expanded to the limit of available appropriations.

Code of Ethics. Special Committee on this subject to report at the forthcoming Spring Meeting.

Regular Nominating Committee. The Committee for 1920 was elected by the Local Sections at the Annual Meeting in full accord with the spirit of this recommendation, and elaborate By-Laws are now in passage through the Council to establish the method of election recommended.

Time of Election of Officers. The By-Laws in passage regarding the nominating Committee provide for advancing the time of election of officers to October 1, which will give the President ample opportunity to appoint Committees before the Annual Meeting.

Information on Candidates. Biographical sketches of all candidates were issued to the membership with the last ballot.

National Organization. The recommendations on creating a national agency through which cooperation of all local groups, state groups and national societies can be secured for purposes of national scope have been expanded in a memorable report by the Joint Conference Committee of the Founder Societies which is about to be put in effect, as noted elsewhere in this issue.

The thanks of the Society are due to the group of members who constituted the Committee on Aims and Organization and who worked for sixteen months on one of the biggest problems the Society has ever undertaken—that of conducting a thorough investigation into its own affairs. That the recommendations of this Committee are far-reaching will not be disputed, but that is not the essential point, which is that the members of this com-

mittee individually and the Society collectively have a satisfaction of knowing that, in the memorable year 1919, the period of self-examination of the major engineering organizations, our Society not only maintained but considerably enhanced its prestige and also assisted in maintaining and enhancing the prestige of the Founder Societies' movement, which is evidenced in the growing acceptance of the vital recommendation of the Joint Conference Committees of the Founder Societies that there be a single comprehensive organization in the engineering profession to further the public welfare wherever technical knowledge and training are involved.

A New Activity—Professional Sections

Groups to Be Formed of Members Having Common Specialties—Aeronautics, Cement, Fuels, Gas Power, Industrial Engineering, Machine Shop, Ordnance, Power, Railroads, Textiles, Proposed as First Sections

Under the authority of the Constitution the Council has authorized the establishment of Professional Sections, and steps are being taken to inaugurate sections on Aeronautics, Cement, Fuels, Gas Power, Industrial Engineering, Machine Shop, Ordnance, Power, Railroads and Textiles. These first sections will be the nucleus of an organization of Professional Sections covering all branches of mechanical engineering, and other sections will be established as quickly as interested groups in the Society make application. An amendment to the Constitution to create a standing Committee on Professional Sections is now being balloted on.

The Local Sections provide for groups of members having a common interest—their community activities. The Professional Sections will provide for groups of members having a common interest—their specialty.

MEMBERS WILL BE REGISTERED

To inaugurate the new activity, registers will be prepared of all members of the Society specializing or interested in each of the ten branches listed above. Members of all grades, without regard to residence, may have their names entered in these registers upon application and all members interested are invited to make application immediately. *There will be no additional assessment on members for participation in this activity.*

As soon as the registers are made up, ballots will be taken in each Professional Section to elect an Executive Committee in accordance with By-Laws already established and reprinted below. It is to be noted that these By-Laws also provide for Affiliates of the Sections, and members are invited to suggest the names of non-members who may be interested.

BY-LAWS GOVERNING PROFESSIONAL SECTIONS

These By-Laws were originally passed by the Council at the time the By-Laws governing Local Sections were put into effect; in fact, the two sets of By-Laws were framed by the same committee. The Council sees no reason to modify them at this time, but a special committee on Professional Sections which was recently appointed by the Council to advise on this activity suggests a slight amendment which is here given as a footnote.

B 47 (a) A professional section of the Society shall consist of Honorary Members, Members, Associates, Associate-Members and Juniors of The American Society of Mechanical Engineers and of other persons to be designated Affiliates as hereinafter described,

(b) A professional section of The American Society of Mechanical Engineers may, with the approval of the Council, be organized for the consideration of any engineering, scientific, or professional topic, provided that a number, satisfactory to the Council, of Members of the American Society of Mechanical Engineers, unite in making written request for such an organization. Such a section shall be designated as _____ Section of The American Society of Mechanical Engineers,—the blank being filled by the topic specialized.

(c) The provisions of the Constitution, By-Laws and Rules of The American Society of Mechanical Engineers, and the precedents of

the Society with respect to professional sessions for the discussion of papers, shall cover the procedure of the professional sections except that no meeting of a section shall be considered a meeting of the Society as a whole.

(d) For the convenient conduct of its professional affairs the section shall organize an Executive Committee of five members of the Society, under the general direction of the Council. Such officers as the section shall require must be selected from the membership of the Society. Other committees of the section shall be appointed by its Executive Committee.

(e) The Executive Committee of the section subject to the approval of the Secretary of the Society, shall designate a Secretary of the section of the Society whose duties shall be those usually attaching to the Secretary of a professional section, and who shall also see that the discussions of papers are satisfactorily reported and transmitted to the Secretary of the Society.

(f) Expenditures for the purpose of a section chargeable to the Society must be authorized by the Secretary of the Society before they are incurred, and must be provided for in the budget approved by the Council. No liability otherwise incurred shall be binding on the Society. Any expenditure not so provided must be met by the section itself.

(g) Engineers and others not members of The American Society of Mechanical Engineers, but desiring to participate in the meetings of the section may enroll themselves as Affiliates as heretofore provided, with the approval of the Executive Committee of the section. Such Affiliates shall have the privilege of presenting papers and taking part in the discussions. They shall pay five dollars (\$5) per annum, which shall be due and payable in advance on October 1 of each year of their enrollment, and shall thereby be entitled to receive the regular issues of The Journal for a period covered by such subscription.

(h) The Council of The American Society of Mechanical Engineers may, at sixty days' notice, suspend or disband any section.

NOTE: A proposal to amend these By-Laws is before the Council. This provides that the dues of Affiliate members of the sections not members of the Society be \$10 instead of \$5. Until this amendment is decided, names of Affiliates suggested will merely be kept on file and these men will not be approached for registration.

SUGGESTED ACTIVITIES OF PROFESSIONAL SECTIONS

The primary object of these sections is to strengthen the professional activities of the Society by developing group action of specialists within the organization for the purpose of developing their fields and of keeping the whole Society informed regarding progress in their specialties. This can and should be done in coöperation with the other activities of the Society as follows:

In Connection with the General Meetings. At the request of the Committee on Meetings and Program to provide papers and conduct symposiums on special subjects at the Annual and Spring Conventions.

In Connection with the Local Sections. At the request of the Committee on Local Sections and of the Executive Committees of the several Local Sections throughout the country, to provide papers for meetings and conduct symposiums at meetings of the Local Sections.

In Connection with Special Meetings. At the instigation of the Professional Sections themselves, to conduct special meetings of the Society as directed by the Council in accordance with the Constitution.

In Connection with the Publications. To provide papers for MECHANICAL ENGINEERING, as do the Local Sections, subject to the approval of the Committee on Publication and Papers.

In Connection with Other Activities. The work of the Research and Standardization Committees and all the various professional committees of the Society will be closely allied with the new activity.

In Connection with Other Organizations. To coöperate with special organizations and with similar professional sections of other societies in the advancement of engineering knowledge and development of the goodwill of the engineering profession.

HOW TO REGISTER IN THE NEW ACTIVITY

Members desirous of actively participating in the work of the new Professional Sections should request the Secretary to enter their names in the registers, specifying in which section or sections they wish to be enrolled.

Members are also invited to suggest additional professional sections to those listed in the first paragraph.

To facilitate the election of committees, members are also invited to indicate their availability for committee work in the Professional Sections.

Finally, names of non-members who are likely to be interested in the new activity will be received by the Secretary and placed on file to be later considered for registration as Affiliates.

Should A.S.M.E. Juniors Have the Privileges of Members?

The Philadelphia Section Says They Should and M. L. Cooke Gives the Reasons Why

At the meeting of the Philadelphia Section of the A.S.M.E., held January 27, resolutions were passed asking such changes in the Constitution of the Society as would be necessary to give Juniors the right to vote and hold office. It is at present provided by the Constitution that only the upper grades of membership shall be permitted to vote and hold office, although Juniors share with the other members all the other privileges that go with membership in the Society. The text of the resolutions is as follows:

WHEREAS, Under clauses C6 and C7 of the Constitution of The American Society of Mechanical Engineers Junior members are prohibited both from voting and from holding office; and

WHEREAS, Such reasons as may have suggested the wisdom of this provision at the time of its adoption over 30 years ago no longer obtain; and

WHEREAS, The withholding of these vital privileges from members below 30 years of age is out of harmony with the practice of other professions and the institution of organized society generally; and

WHEREAS, It is desirable to encourage our younger members to the fullest possible participation in Society affairs; now therefore be it

Resolved, That the Philadelphia Section of the A. S. M. E. go on record as favoring a change in the Constitution which will permit Junior members both to vote and to hold office; and further be it

Resolved, That the Secretary be instructed to transmit a copy of these resolutions to the Council and to each Section of the Society requesting the coöperation of these bodies in securing the adoption of the necessary amendments in the Constitution.

At the meeting of the Section at which these resolutions were introduced remarks were made by Morris L. Cooke outlining very fully the reasons for adopting the resolutions advocating the extension of full privileges to all Juniors in good standing. Mr. Cooke said:

The members of the Section will doubtless be more interested in the present-day value of the provisions which prohibit Juniors from voting and holding office than in the reasons which operated nearly a generation ago to have these provisions included in the Constitution.

After a somewhat careful investigation I can find only one instance outside of engineering where a man after he has reached the age of 21 is barred from full participation in the activities of organizations to which he is otherwise eligible. The single exception is a rule of the Supreme Court of the United States which provides that a lawyer must be 30 years of age before he is eligible to practice before it. The reason for such a rule is obvious. Of course in all relations with the Government in city, state and nation, a man secures all his privileges and has thrust upon him his full responsibilities when he reaches the age of 21. The same is true in all social organizations the constitutions of which I have been able to examine. In church affairs full obligations are assumed and full privileges are granted frequently even before the member has reached the 21st year. Here age as such does not appear to be a controlling factor. In all the professions except engineering—medicine, the law and architecture, for instance—I have not been able to discover any place—except the single instance of the Supreme Court noted above—where any age except 21 is stipulated as a requirement for full participation.

Even in engineering the practice is not by any means uniform. In fact, the practice of withholding the vote and the right to hold office from any class of members, even in engineering organizations, is quite unusual. The "Miners" allow all members irrespective of age or grade both to vote and hold office. The "Electricals" allow all classes to vote but do make a provision

that only fellows who are over 32 years of age may be president and that only members who are over 27 years of age shall be vice-president, manager or treasurer. The Associates, who seem to correspond to our Juniors, however, can vote but not hold office. With the "Civils" only the two higher grades of the membership—Members and Associate-Members—vote and hold office. The Associates and the Juniors do neither. But in this connection it should be noted that Juniors are admitted at 18 and automatically cease to be members at 32 in case before that time they have not secured some other grade of membership. The Franklin Institute has associates between 17 and 25 who neither vote nor hold office. But at 25 they automatically pass to a different basis as to dues and then secure the full privileges of membership without any further test as to eligibility. Apparently the only reason for withholding the vote is the fact that they pay very low dues. There are a large number of engineering and quasi-engineering societies, however, which make no exception in this matter of voting and holding office in favor of any class of the membership.

In view of the foregoing it is probably a fair statement that in admitting Junior members at 21 and then not allowing them to vote or hold office until they become Associate-Members at 27, Associates at 30 or Members at 32, the A. S. M. E. observes the most conservative policy in this respect of any organization in the United States.

The last Year Book of the A. S. M. E. lists nearly 8000 (7914) members of the grade which can vote and hold office and nearly 2300 (2275) in the Junior grade. So that if we gave Juniors the vote they would have something less than a quarter of the total. Inasmuch as very few men join the Society just at 21 and there is nothing to force Juniors to change grade at 27, 30 or 32—the ages at which they become eligible to other grades—it is likely that the average age of Juniors is much above what it would appear to be.

Undoubtedly many young engineers postpone joining the A. S. M. E. until they can do so on a basis which will give them full privileges. Due to this postponement probably some men never join. Of even more importance is the fact that Junior members without the right to vote and hold office are loath to take any active part in Society affairs. This habit of being onlookers is one not easily overcome. There are of course certain kinds of Society work which are entirely appropriate and even desirable for men below 30 which may be inappropriate and even burdensome for engineers who have begun to take on the more responsible grades of work. It also seems to me that we need in all our activities more of the viewpoint and enthusiasm of the younger men. Experience shows that when it comes to selecting officers the young man is just as apt to want the best man as are his seniors and is not influenced to vote for a young man simply because of his youth.

Finally, as I pointed out in a communication published in the November issue of MECHANICAL ENGINEERING, it seems to be very bad taste—if nothing more—to refuse to allow Juniors full participation in Society affairs in view of the fact that we have our fighting and dying done for us now by men below 30. It will be recalled that the A. E. F. regiments chosen by the selective draft were confined to the 21-30-year-olds. I do not think The American Society of Mechanical Engineers can afford to continue this archaic and useless custom of withholding valued privileges from its younger members.

Some time ago there was sent out to the members of the Society, known to have served in either a military or civilian capacity during the war, a questionnaire. This was sent out by a committee which had been appointed to collect information and to supervise the publication of a record of members who served in such capacities.

The response to the questions asked has not been what it should have been—very many have failed to answer. The committee hopes that all who have not done so will immediately reply to the questions that were asked, in order that the Society's publication may be complete.

NECROLOGY

LUCAS NICOLAAS ALTA

Lucas Nicolaas Alta, a member of the Society since 1896, died at Watergraafsmeer, Holland, December 2, 1919. Mr. Alta was born in Holland in 1859 and received his education at the School of Technology, Amsterdam. Following his graduation, he obtained drawing-room and shop experience in Amsterdam and was for a time assistant engineer on board a steamship. From 1882 to 1896 he was connected with the W. C. & K. DeWitt Engineering Works in Holland as chief erector and draftsman. From 1896 until the time of his death he was mechanical engineer and a member of the firm of L. N. Alta & Co., of Amsterdam.

DANIEL ASHWORTH

Daniel Ashworth, who died November 8, 1919, was born in Lancashire, England, in 1841. At the age of nine he came to this country with his father, settling in Pittsburgh, Pa., where he attended the public schools. He entered the mechanical field as a glass mold maker and later became master mechanic of glass works in Pittsburgh and Boston. In 1872 he became the manager of the Hemingray Glass Company, Covington, Ky., a position which he held for ten years, during which time he made a thorough study of steam. For several years he was general superintendent of the Lane & Bodley Co. of Cincinnati. In 1885 he returned to Pittsburgh as consulting engineer and steam expert.

Mr. Ashworth retired from the engineering profession in 1906, having been honored by President Roosevelt with the appointment as United States Pension Agent of Pennsylvania; later he was re-appointed by President Taft. He became a life member of the Society in 1885. He was also a member of the Engineers Society of Western Pennsylvania and was prominent in fraternal, civic and political affairs throughout western Pennsylvania.

EVARTS SHANKIN BARNUM

Evarts S. Barnum, of the C. M. Basford Co., died at his home in Ridgewood, N. J., on February 3, 1920. Mr. Barnum was born in Louisville, Ky., in July, 1883. He was educated at Purdue University, being graduated in 1906. His entire business life was connected with railroad work. Immediately upon his graduation from college he entered the service of the Pennsylvania Lines West as apprentice, and worked successively as apprentice, machinist, foreman, general foreman, roundhouse foreman and motive-power inspector. Leaving the railroad in 1917 he joined the staff of the *Railway Age* as associate editor, later becoming associated with the C. M. Basford Co. in charge of the copy department.

Mr. Barnum became a member of the Society in 1918.

HENRY B. BARTLETT

Henry B. Bartlett, consulting engineer for B. F. Perkins & Sons, Holyoke, Mass., died on January 18, 1920, of pneumonia. Mr. Bartlett was born in December 1856 in Carbondale, Pa. He began his mechanical experience at the old locomotive works in Paterson, N. J., in 1872 and completed his work at the Farrel Foundry & Machine Co., Waterbury, Conn. Since that time Mr. Bartlett was connected with some of the largest machine interests of the country as mechanical expert and engineer, including the Mergenthaler Linotype Co., which was brought to a manufacturing basis largely through his inventions and skill.

In 1896 Mr. Bartlett went to Berlin, Germany, as general manager of the Ludwig Loewe Co., and while there became advisory engineer to the Typograph Gesellschaft. In 1902 he returned to the United States, becoming a teacher of tool and machine making at the Hebrew Technical School, New York. He held this position for eleven years when he resigned to become associated with B. F. Perkins & Sons.

Mr. Bartlett was a member of the Engineering Society of Western Massachusetts. He became a member of our Society in 1918.

HENRY DONALD KEMP

Henry Donald Kemp died at Montreal, Canada, on October 4, 1919. He was born in Boston, Mass., in October 1890, and was graduated from the Massachusetts Institute of Technology in 1912 with the degree of B. S. in electrical engineering. For several years he was in Rio de Janeiro, Brazil, first as assistant to the engineer in charge of the construction of a coal-handling plant and later in charge of the erection of a half-million dollar coal pier. His connection at this time was with the Mead-Morrison Manufacturing Co. and following

his return from Brazil he was assistant engineer of the foreign department of this concern.

During the war he was engaged in the production of munitions. He was superintendent of the British Munitions Company, Ltd., near Montreal, Canada, and in charge of all work of the concern, the only American among 4,000 Canadians. Following an unsuccessful attempt to enter active service, he accepted the position of assistant works manager of the National Conduit & Cable Co., an ordnance concern, at Hastings-on-the-Hudson, N. Y. Later he returned to Montreal and reengaged in production work in munitions supplies. At the time of his death he was about to enter the firm of Howard Smith Paper Co., Ltd., as assistant to the president.

Mr. Kemp was a member of the Technology Club of New York, of the American Institute of Electrical Engineers, and a junior member of the Society since 1916.

MATTHEW LEANDER KING

Matthew Leander King, Major, U. S. A., died on October 23, 1919. Major King was born in Panora, Ill., on May 20, 1878. He was graduated from the mechanical engineering department of Iowa State College in 1906.

He spent five years as an experimentalist in agricultural engineering with the Experiment Station of Iowa State College, Ames, Iowa, during which time he invented the hollow clay tile silo. For two years he was superintendent and general manager of the David M. Bradley Implement Works at Bradley, Illinois. He organized the Iowa City manufacturers into the Permanent Buildings Society for the development of new designs of and uses for hollow-clay building tile.

Mr. King entered the army in September, 1917, with the rank of Captain and was assigned to the Aviation School of Aerial Observation at Post Field, Fort Sill, Okla., in charge of maintenance and repair of aeroplanes. He was advanced to the rank of Major in August, 1918, and in November of that year was assigned to Indianapolis as chief engineering officer for aviation in the Northern District. In February, 1919, he was made acting director of aviation for the Northern District. In April he was transferred to Washington, D. C., and from there he was assigned on special missions until July when he became flight commander and chief engineering officer of the All-American Pathfinding and Recruiting Expedition. He was transferred from the Officers' Reserve Corps to the regular army with the rank of Major in October about a week before his death. While at Post Field he learned to fly and was given the classification of Reserve Military Aviator.

Major King was a charter member of the American Society of Agricultural Engineers, a member of the American Society for Testing Materials, and belonged to various aeronautical and officers' clubs. He became a member of our Society in 1912.

HENRY WEICKEL

Henry Weickel, who died on November 28, 1919, was born in Germany on October 31, 1852. He was graduated from the Technical Institute at Kaiserslautern, Bavaria, and came to the United States shortly afterward, in 1872.

He entered the employ of the Government as a draftsman at the Watertown Arsenal, Mass., and remained there five years when he became connected with the Hinckley Locomotive Works, Boston, in a similar capacity. In 1882 he accepted a position with the Yale & Towne Manufacturing Co., Stamford, Conn., as a designer of cranes and hoisting machinery, making this branch of the profession his life work from that time on. For thirteen years Mr. Weickel was connected with this concern when they disposed of their crane interests to the Brown Hoisting and Conveying Machinery Co., Cleveland, Ohio. He then became identified with the Cleveland company, in whose employ he remained until the fall of 1900, when he accepted a position with the Pawling & Harnischfeger Co., Milwaukee, manufacturers of electric cranes. He was actively identified with the designing of cranes, and for a number of years, up to the time of his death, was consulting engineer for the company.

Mr. Weickel became a member of the Society in 1895. He was a charter member and past president of the Milwaukee Section of the Society.

ALBERT SCHMID

Albert Schmid, who was so closely identified with the early development of electrical machinery in the United States and prominent in the electrical world of France, Switzerland, Italy and Great Britain, died on December 31, 1919, in New York.

Mr. Schmid was born in Zurich, Switzerland, in 1857, and received his education in that city. He began his real career by entering the employ of the French Westinghouse Air Brake Co., where Mr. Westinghouse met him in the early eighties and being impressed by his ability invited him to come to this country.

Soon after his arrival Mr. Schmid turned his attention to designing work for the Westinghouse Air Brake Co., then located in Allegheny, Pa., where his keen mechanical perception and insight brought him

rapid advancement. When Mr. Westinghouse became interested in the Union Switch & Signal Co. and started there his original electrical work, he engaged Mr. Schmid as his chief designer and engineer in that field. In 1886 he was transferred to the newly created Westinghouse Electric Co., becoming its first chief engineer and in 1886 its general superintendent.

In 1897 he went to Europe for the purpose of studying the continental development in the electrical art and the manufacturing possibilities there, and as result of this trip, the formation of the French Westinghouse Co. was soon under way. He was made director general of that organization. He also held the positions of director of the Westinghouse Electric Co., Ltd., England, president of the Compagnie des Lampes a Filament Metallique of France and at the time of his death in addition to his position as consulting engineer for the American Westinghouse Co., represented the Westinghouse Lamp Co., and had general supervision of its interests abroad.

It can be said truly that Mr. Schmid ranked foremost in the field of mechanical design among the engineers of the last century, and the creations of his mind constitute an enduring monument to his genius.

Mr. Schmid became a member of the Society in 1890.

PERSONALS

In these columns are inserted items concerning members of the Society and their professional activities. Members are always interested in the doings of their fellow-members, and the Society welcomes notes from members and concerning members for insertion in this section. All communications of personal notes should be addressed to the Secretary, and items should be received by March 15 in order to appear in the April issue.

CHANGES OF POSITION

THEODORE MAYNZ has severed his connection with the Gulf Pipe Line Company, of Houston, Tex., and is now with the Cleveland Electric Illuminating Company, of Cleveland, Ohio, in the capacity of testing and efficiency engineer.

WILLIAM B. CORBETT has severed his connection as checker with the Terry Steam Turbine Company, Hartford, Conn., to become affiliated with the mechanical drafting division of the Stone and Webster Company, of Boston, Mass.

LOUIS MARDAGA, formerly sales engineer, Mickle Milnor Engineering Company, Philadelphia, Pa., has accepted a position with the Lehigh Coal and Navigation Company, Lansford, Pa.

FERDINAND L. SNYDER has resigned his position as assistant engineer, the Baltimore Copper Smelting and Rolling Company, to assume the position of efficiency and assistant plant engineer, Portsmouth Cotton Oil Refining Company, Portsmouth, Va.

HENRY A. BROWN, formerly Captain, Ordnance Department, U. S. A., in charge of manufacturing operations in the Armory of Rock Island Arsenal, has severed his connection with the Rochester office of the Brown and Sharpe Manufacturing Company, and has been elected vice-president, in charge of engineering and sales, with A. C. Towne, Inc., Buffalo, N. Y., small tool specialists, and district representatives of the Illinois Tool Works.

S. E. FLEXER, until recently associated with the Hercules Cement Corporation, Nazareth, Pa., has accepted the position of assistant to the chief engineer, H. G. Barnhurst, of the Fuller Engineering Company, Allentown, Pa.

NORMAN L. BAKER has accepted a position with the Curtis and Company Manufacturing Company, St. Louis, Mo. He was formerly connected with the American Steel Foundries, East St. Louis, Ill.

CYRUS W. BASSETT, formerly assistant manager, Budd Wheel Corporation, Philadelphia, Pa., has become affiliated with the production department of Bethlehem Steel Company, Bethlehem, Pa.

HERBERT V. DARROW has assumed the duties of general superintendent of The Webb Development Company, Cleveland, Ohio. He was formerly connected with the Degnon Construction Company, Allaben, N. Y.

GEO. L. BOHANNON, until recently chief engineer, The Youngstown Steel Car Company, Youngstown, Ohio, has accepted a position with the Thomas Spalding Machine Company, Pittsburgh, Pa.

EDWARD H. REEVES has recently resigned his position as scientific assistant in the U. S. Public Health Service, and has assumed the duties of night superintendent of the Acme Wire Company, New Haven, Conn.

J. H. BICKY has become connected with the Reading Iron Company, Scott Foundry Department, Reading, Pa., in the capacity of superintendent. He was formerly general superintendent of the Pennsylvania Brake Beam Company, Danville, Pa.

ANNOUNCEMENTS

M. A. PEARSON, chief engineer of the Allen Machine Company, of Erie, Pa., until February, is now eastern and export representative of the same company, with office in New York.

GEORGE S. BLANKENHORN has recently resigned as engineer, Philadelphia district, Wilson Snyder Manufacturing Company, to take up general engineering work in Philadelphia.

ROBERT I. MINER has assumed the duties of manager of the Detroit office of The Bossert Corporation of Utica, N. Y.

CHARLES EISLER, an expert on incandescent-lamp-making machinery, has just completed one of the most modern lamp factories for the Save Electric Corporation, and has accepted the position of consulting engineer and vice-president of the Newark Engineering and Tool Company, now specializing on lamp machinery. Mr. Eisler was, for many years, connected with the Westinghouse Lamp Company.

WALTER C. ROBBINS, formerly chief engineer for the Curtiss Aeroplane and Motor Corporation, Buffalo, N. Y., severed his connection with that company, January 1, to start a consulting engineering business with his former assistant, Edwin G. Hempel, under the firm name of Robbins and Hempel, with main office in Buffalo, N. Y. The firm will handle work in connection with internal-combustion engines, manufacturing, aeronautics and automobiles.

COLONEL GABRIEL R. SOLOMON, recently officer in charge of engineering branch, construction division of the Army, and formerly of the Solomon-Norcross Company, consulting engineers of Atlanta, Ga., has resumed engineering practice as vice-president of the Fuller Industrial Engineering Corporation, New York.

APPOINTMENTS

HOWARD P. FAIRFIELD has been appointed professor of machine construction, Worcester Polytechnic Institute, Worcester, Mass. He was formerly assistant professor of machine construction at the Institute.

ROBERT G. PILKINGTON, of Chicago, has been appointed experimental engineer by the Wahl Company. His duties will consist of the consideration of designs, materials and processes to be used in connection with the manufacture of the adding machines, Eversharp pencils and fountain pens made by the company.

Section Meetings

ATLANTA:

February 24. Building a 30,000-kw. Turbo Set, by H. E. Bussey, District Engineer, General Electric Co.

BALTIMORE:

February 11. The Development of Long-Distance Electric Power Transmission, by P. M. Lincoln, Consulting Engineer, Cleveland, O.

February 18. The Purchase and Erection of Engineering Equipment, by A. S. Loizeaux, Electrical Engineer, Consolidated Gas Electric Light & Power Co.

February 25. City Planning and Its Relation to Municipal Development, by Nelson P. Lewis, Chief Engineer, Board of Estimate & Apportionment, New York.

February 27. Council Meeting. Informal Dinner attended by the Mayor, City Superintendent of Schools, Council, Sections Committee, Executive Committee of the Baltimore Section, representatives of the Engineers' Club and members of the Philadelphia and Washington Sections. Evening meeting on Vocational Education.

February 28. Visit to Experimental Stations and Laboratories of the U. S. Naval Academy at Annapolis; luncheon at Carvel Hall.

BOSTON:

February 3. Dinner meeting of A. S. M. E. & A. I. E. Large Turbo-Generator Units from the Operator's Standpoint. Discussion opened by Farley Osgood, Vice President, Public Service Electric Co., Newark, N. J. Engineering Research, by E. H. Colpitts, Western Electric Co.

BUFFALO:

February 24. Wage Payment, by A. L. De Leeuw, New York City.

CHICAGO:

January 23. Fuel for Internal Combustion Engines, the Lubrication and the Motor Itself, by William F. Parish, Sinclair Oil Co. Mr. Arthur L. Rice, Chairman of Chicago Section, spoke on the Jones-Reavis Bill and the proposed National Department of Public Works.

February 16. Joint meeting of the A. S. M. E. and Western Society of Engineers. Factory Fire Protection, by Benjamin Richards, Chief Engineer, Western Factory Insurance Association.

February 28. Joint meeting of the A. S. M. E. and Western Society of Engineers. The Washington Award will be presented to Mr. Herbert Hoover.

CINCINNATI:

January 15. The Evolution of Automotive Electrical Ignition, by R. C. Fryer.

February 19. Joint meeting with Engineers' Club of Cincinnati. The Engineer and the Markets of the World, by Dean Herman Schneider, University of Cincinnati.

CLEVELAND:

February 24. Joint meeting of A. S. M. E. with C. E. S. A. Photographic Study of the Sounds of Large Guns, by Dr. Dayton C. Miller, Case School of Applied Science, Cleveland, Ohio.

COLORADO:

January 23. What the United States Engineers Did in France, by Major Charles Larsen.

EASTERN NEW YORK:

February 20. Performance Tests on Aeroplanes, by A. R. Stevenson, Jr., and Supercharger for Aeroplane Engines, by S. A. Moss.

ERIE:

February. Talk by Dr. Ira N. Hollis.

INDIANAPOLIS:

January 23-24. Joint meeting of Indiana Engineering Society, A. S. M. E., A. I. E. E., A. A. E., Scientech Club and Indiana Society of Architects.

LOS ANGELES:

February 10. Meeting with Dean Dexter S. Kimball. Solar Work at the Mount Wilson Solar Observatory, by Dr. St. John.

MINNESOTA:

February 20. Coals and Coal Analysis, by W. D. Langtry, Commercial Testing and Engineering Co., of Chicago, Ill.

MERIDEN BRANCH:

February 10. Methods of Measuring and Manufacturing to the Millionth of an Inch, by W. H. Weingar, Pratt and Whitney Co.

NEW HAVEN BRANCH:

January 21. Joint meeting with Winchester Engineers' Club. Appraisal and Valuation Methods, by J. G. Morse.

NEW YORK:

February 10. Alloyed Aluminum as an Engineering Material, by G. M. Rollason, Aluminum Manufacturers, Inc.

NEW ORLEANS:

February 9. Special Meeting to discuss proposed National Department of Public Works.

ONTARIO:

February 2. Meeting with Secretary Rice. Industrial Relations by R. W. Gifford, Supt., Massey Harris Works.

OREGON:

January 29. Talk by Dean Dexter S. Kimball.

PHILADELPHIA:

February 24. Navy Night; War Time Naval Engineering, by Comdr. J. S. Evans, U. S. N., Bureau Steam Engineering, Washington, D. C.

PITTSBURGH:

January 16. Organization meeting of the members in the territory of Pittsburgh, Pa., at which a petition was signed by the members. This petition was granted by the Council at its January meeting, and there exists from January 24th, a Pittsburgh Section of the Society including the territory within a radius of 30 miles from Pittsburgh, and the cities of Butler, Washington, Johnstown, Franklin, Uniontown, Connellsburg, Pa., and Steubenville, Ohio, and Wheeling, West Va.

ROCHESTER:

February 4. The Engineer's Participation in Engineering Phases of Public Affairs, by Secretary Rice.

ST. LOUIS:

February 20. New By-Product Coke Plant at Granite City, by Mr. P. E. Irvine, Granite City Plant, St. Louis Coke & Chemical Co.

SAN FRANCISCO:

February 5. Talk by Dean Dexter S. Kimball.

VIRGINIA:

January 26. Informal address by Earl F. Scott, member of the Council; election of officers.

WASHINGTON, D. C.:

January 29. Experience with the Ricardo Engine for Tanks in France, by Major Ralph Sasse, U. S. A. Experience with the Diesel Engine for Submarines, by Lieut. Comdr. M. C. Bowman. Artificial High Altitude for the Study of Aircraft, by Dr. A. C. Dickinson, Bureau of Standards, Washington, D. C.

WASHINGTON STATE:

January 27. Dean Dexter S. Kimball addressed the engineering students of the University of Washington.

Supper meeting, Dean Kimball spoke at joint session of combined engineering societies of Seattle.

January 28. Dean Kimball spoke at informal luncheon at the Engineers' Club.

WORCESTER:

February 10. Industrial Relations, by Robert B. Wolf, Industrial Engineer, New York City.

EMPLOYMENT BULLETIN

THE SECRETARY considers it a special obligation and pleasant duty to make the office of the Society the medium for assisting members to secure positions by putting them in touch with special opportunities for which their training and experience qualify them, and for helping any one desiring engineering services. The applications and positions listed below combine the services of the Society and of the Engineering Societies Employment Bureau, Engineering Societies Building.

POSITIONS AVAILABLE

Stamps should be inclosed for transmittal of applications to advertisers; non-members must accompany applications with a letter of reference or introduction from a member; such reference letter will be filed with the Society records.

TECHNICAL GRADUATE; construction experience and familiarity with operation and power cost accounting essential. Must be able to supervise design and construction of power house changes and additions; familiarity with steel work and piping layouts required. R-1911.

EXPERIENCED LOCOMOTIVE DESIGNERS, DETAILLERS, and TRACERS: wanted by firm of locomotive builders. Detailers and tracers without locomotive experience will be considered. Location Pennsylvania. R-2280.

MACHINE-TOOL SALESMAN for foreign work. Must be technical graduate with some experience in machine tools. Foreign language not necessary but desirable. Location New York City. Z-140.

EXPERIENCED COMPUTER, transitman and rodman. Location Long Island. Z-149.

MECHANICAL ENGINEER two years out of college, with manufacturing and machine shop experience, for sale work for company manufacturing trucks. Duties would be to visit shipyards and report upon conditions and means of transportation. Pratt Institute or Brooklyn Polytechnic man desired. Location New York City. Z-150.

ENGINEER with one or two years' experience in efficiency or scientific management work. Location Brooklyn, N. Y. Z-151.

YOUNG MAN having tact and pleasing personality to take charge of mail, make out reports, meet members and do general office work in connection with Standardization Committee of Technical Society. Location New York City. Z-154.

RECENT MECHANICAL ENGINEERING GRADUATES or men who have not completed college course for training for industrial work. Location New Jersey. Z-148.

FOUNDRY SUPERINTENDENT—in light grey

iron foundry producing quantity work and some jobbing. Practical experience and ability to handle men and get production considered more essential than technical qualifications. Technical assistance will be rendered if and when needed. Open shop employing total of about 100 men in Eastern Pennsylvania. Z-158.

TECHNICAL GRADUATE, preferably a mechanical engineer, with about ten years' experience in general engineering practice, to direct the work of large drafting room and ordering of materials for construction of plants all over the world. Should have had drafting room experience and held executive positions; should be good executive with about ten years' of engineering experience, and possess good personality and judgment, initiative, and common sense. Location Elizabeth, New Jersey. Z-159.

TECHNICAL ENGINEER with at least two years' experience in operation of steam power plants, duties would include estimates, reports and general work of an engineering nature required by large central station and isolated heating plants. Position is in steam engl-

neering department of public utility. Location St. Louis, Mo. Z-161.

EXPERIENCED SALES MANAGER, preferably technical graduate, with engineering experience, who has specialized in elevating, conveying and mechanical power transmission machinery. Location New York City. Z-162.

SUPERVISING ENGINEER, experienced in design of unit machines, elevating, conveying and mechanical transmission machinery for flour and cereal mills. Location New York City. Z-163.

RECENT GRADUATES of mechanical or electrical engineering courses for engineering work connected with production of electrical and mechanical devices. Send application to Mr. J. C. Wilson, the Cutler, Hammer Mfg. Co., Milwaukee. State training, experience in industrial plants, if any, references and other information concerning yourself. Z-164.

STEEL DESIGNERS for checking work on New York Court House. \$1.25 per hour. Location Boston and New York City. Z-171.

RECENT GRADUATE ENGINEER for work in submarine and turbine department of manufacturing company. Location New York City. Z-172.

MECHANICAL DRAFTSMAN for detail work, with company manufacturing automobile accessories such as shock absorbers, jacks and bumpers. Salary \$80 per week. Location Jersey City, N. J. Z-174.

DRAFTSMAN—Large copper company in the southwest needs first class draftsman with structural steel experience on both design and detail. Applicants should state in detail experience, education, references, salary expected and send sample of work. Man with mining or mill experience also desired. Z-176.

STRUCTURAL DRAFTSMEN, DETAILERS, AND CHECKERS wanted for office building and theater work. Old established concern. Steady employment. Substantial wages. State experience and wages desired. Location Boston. Z-177.

INSTRUCTOR in vocational department to teach mechanical drawing. Work is in connection with rehabilitation of disabled soldiers. Courses will be given in sketching and reading of blue-prints, to men training to be electricians, etc. Courses will also be given leading to vocations of mechanical draftsman, architectural draftsman, machine designer, etc. Salary offered, \$175 per month. Work begins at once. Z-178.

CHIEF DRAFTSMAN to take charge of drafting room of industrial plant. Should be graduate from some suitable school in course of engineering, preferably mechanical; should have had about eight years' experience in shop work, construction work and designing. Personality must be such as to fit for leadership of subordinates and cooperation with associates; these qualifications are essential toward insuring opportunities for advancement in the service. Location New Jersey. Z-179.

HEAD OF CIVIL ENGINEERING DEPARTMENT for Southern University; man with good training, personally competent to head department of growing importance, and man of first-rate personality in every way desired. The situation in State is such that man should be able to make contacts with such State Departments as the State Highway Commission. An all-round man wanted. Salary would be around \$3,500, with good opportunity for the future. Z-180.

MECHANICAL ENGINEERS AND ESTIMATORS with experience in valuation of industrial properties. Two openings, one at \$3600 and the other \$2600. Z-183.

ENGINEER for supervising the construction of hydroelectric power plant. Vacancy will call for resident civil engineer to supervise construction, including dam, power station and transmission line. Previous experience in similar work essential. Location Northern Ontario, Canada. Z-186.

MECHANICAL DESIGNER for rolling mill and heavy machinery work. Salary \$40 per week. Location New Jersey. Z-190.

FIRST CLASS STEAM-HEATING DRAFTSMEN for industrial buildings. Location New York City. Z-191.

HEATING AND VENTILATING DRAFTSMAN: young engineer able to do drafting and field work would be considered. Man with personality seeking permanent position desired. Location Harrisburg, Pa. Z-192.

CHIEF DRAFTSMAN for company manufacturing machinery and special apparatus, such as stills, tanks and metal work of all kinds: similar experience desirable but not essential. Salary \$50 per week. Location vicinity of Bridgeport, Conn. Z-194.

RECENT TECHNICAL GRADUATE, with some executive ability, who wishes to take up work in engineering department of public utility in Middle West. Salary to start \$100, with excellent opportunity for advancement. Applicant need not have any particular experience, providing he has the capacity for learning. Z-203.

SALES ENGINEERS to represent manufacturer of hoisting engines, derrick irons, steel derricks, railroad, ditchers, log loaders, and locomotive cranes. Z-204.

DRAFTSMEN: experienced in designing of tractors, including engines, transmissions, chassis, and assembly work. Location Detroit, Michigan. Z-206.

EXPERIENCED DESIGNER of high-speed steam engines for stationary and marine use. Necessary that applicant should have very thorough experience in up-to-date practice. Position would offer very excellent opportunities for the right man. Location New York City. Z-208.

ENGINEERS FOR INDUSTRIAL WORK; openings as follows: (A) assistant assayer, salary \$30-\$35 per week; (B) smelter foreman, salary \$30-\$35 per week; (C) electrolytic tank-house foreman, salary \$30-\$35 per week. Location New Jersey. Z-209.

MACHINE DESIGNERS with several years' experience in designing automatic machines, automatic attachments for machines, etc. Man with technical education, preferably between the ages of 25 to 37, desired. Work is largely that of laying out machines on the board and following their construction to successful completion after the drawings are turned over to the shop. Salary from \$2700-\$3000 per year depending upon qualifications. Location Cleveland, Ohio. Z-211.

MECHANICAL DRAFTSMAN, thoroughly familiar with pipe line work, power house layouts and general conduit work. Position will offer splendid opportunity for advancement. Salary about \$3000 per year. Location Dayton, Ohio. Z-212.

DRAFTSMAN, college man with few years' experience, capable of making drawings of machinery and buildings for repairs and extensions at chemical-metallurgical plant near Pittsburgh and working under older engineers. Position will afford good experience in designing, maintenance and construction. Z-213.

POWER-SALESMAN: graduate electrical engineer; familiar with electrical machinery and capable of studying and developing applications for the use of electricity. This is a very good opportunity for capable and energetic young man. Location Minnesota. Initial salary \$150. Z-214.

MACHINE DESIGNER: broad experience required with such work as automatic printing, paper feeding, wrapping, package, carton or box machinery. Must have inventive ability and productive record sufficient to warrant assuming responsibility for developing new machinery of an important and difficult nature. Exceptional opportunity to right man for permanent position and attractive salary with well established and growing concern. Location Boston suburb. Give experience when replying. Z-215.

ENGINEER experienced in processing pressed steel such as used for electric outlet boxes and conduct experimental work. Experience in non-ferrous metals or alloys only will not be sufficient. Location New Haven, Conn. Z-216.

ENGINEERS AND DRAFTSMEN for Corliss, Uniflow, and marine engine, sugar mill, plate glass table, and special heavy machinery work. Salary \$35-\$60 per week depending upon qualifications. Location Ohio. Z-219.

ESTIMATING ENGINEERS with experience in estimating machine work to handle special work and to assist sales force when necessary. Must be able to take blue prints of special machinery and give complete estimate in number of machine hours required for each operation in the machining of such parts. Location Ohio. Z-220.

PRODUCTION MANAGER of proven ability for reliable and established concern manufacturing high grade specialty. Location Ohio. Address stating age, experience and salary. Z-221.

INSTRUCTOR IN SURVEYING is desired in the school of civil engineering at middle western university as soon as possible after the first of February, at a salary of from \$1400 to \$1800, depending upon the experience and ability of the man. Z-222.

YOUNG ENGINEER to follow up the invention and development of oxy-acetylene apparatus. Position will lead to promotion into the factory or sales work depending upon candidate's qualifications. Location New Jersey. Z-223.

SALES ENGINEER: should preferably be familiar with power-plant equipment, including steam turbines, centrifugal pumps, engines, boilers, reciprocating pumps, etc. High-grade man required and one of experience preferred. Location Philadelphia, Pa. Z-224.

MECHANICAL DRAFTSMAN with experience with such concerns as Crane Company, Babcox & Wilcox, and Worthington Pump Company, for position with company manufacturing safety valves and pressure gages. No recent graduates considered. Salary \$45 per week, plus. Location Connecticut. Application by letter. Z-139.

TECHNICAL GRADUATES wanted for engineering calculations, drafting and research work in connection with steam turbine design, leading to engineering positions. Location Massachusetts. Z-229.

FIRST-CLASS ENGINEERS AND DRAFTSMEN experienced in design of heating and ventilating systems, power plants, electric wiring layouts, sprinkler systems and plumbing. Salary ranges from \$200 to \$300 per month; in reply state education, experience in detail, salary expected and earliest date you could report for work. Address Smith, Hinckman and Grylls, Architects and Engineers, 710 Washington Arcade, Detroit, Michigan. Z-230.

DESIGNER for machinery layouts for large manufacturing plant. Beside the location of machinery for efficient production duties would include other layout work for rolling mill. Good opportunity for advancement. Salary \$250 per month. Location Pittsburgh, Pa. Z-232.

LUBRICATION ENGINEER: graduate chemical or mechanical engineer, former preferred knowledge of steam and gas engine and electrical and general machinery desirable. If possible should be familiar with oil business. While sales experience is not essential, it is desirable, as successful applicant will be in charge of sales work. Location Maryland. Z-236.

ELECTRICAL ENGINEER, technical graduate, about 25 years of age, to have charge of all electrical equipment and part of the mechanical equipment of an industrial plant. Location New York City. Z-238.

BUILDING INSPECTOR and material man for large hotel construction, with experience in all building details as well as in reinforced concrete in building construction. Location Pennsylvania. Z-239.

MECHANICAL ENGINEER: must be able to decide upon methods and equipment required for manufacturing various products, and be capable of engineering any special machinery

MECHANICAL ENGINEERING

needed. Technical education, and 8 to 12 years' experience on manufacturing processes and equipment preferred. Location Middle West. Z-241.

PLANNING ENGINEER with 8 to 10 years' experience in manufacturing work, and several years' experience in planning for quantity production of small apparatus on an interchangeable part basis. Location Middle West. Z-242.

MANUFACTURING EXPERT with 12 to 15 years' experience on quantity production of small interchangeable parts. Must be familiar with construction and operation of commercial manufacturing machinery and capable of designing special process machinery. Location Middle West. Z-243.

DESIGNERS AND DRAFTSMEN for paper mill work on structural design and plant layout. Location New York City. Z-244.

OIL-ENGINE EXPERIMENT ENGINEER to take charge of experiments made in the factory. Should be experienced man, not new in oil-engine line and able to conduct test floor in intelligent way. All experiments are to be made under his supervision and he is responsible for them. Man who held similar position before preferred. Location New York City. Z-245.

TWO FIRST-CLASS DRAFTSMEN who understand machine construction. Location Greenfield, Mass. Z-247.

COMBUSTION ENGINEER; at least 30 years of age, with oil burning experience if possible. Location New York City. Z-250.

RECENT GRADUATE IN MECHANICAL ENGINEERING as office assistant with firm of importers and exporters. Good chance for advancement. Location New York City. Z-252.

EXPERIMENTAL ENGINEER to study problem of waste disposal under supervision. The work will be partly chemical laboratory work of the simpler kinds and partly hydraulic experimental work. Young engineer desired. Position at government arsenal in New Jersey. Maximum salary \$200 per month. Z-255.

YOUNG CHEMICAL ENGINEER familiar with quantitative analysis, elements of organic chemistry, and chemical calculations. Man with good personality desired for training as assistant laboratory chief. Salary \$140 per month. Location New Jersey. Z-258.

MECHANICAL DRAFTSMAN for government ordnance work, consisting of detailing designs of artillery carriages already laid out and in checking finished drawings. Men with experience in detailing of machinery, gas engines, motor vehicles, etc., could qualify. Civil service position. Salary \$1600 to \$2400 per annum. Location Illinois. Z-266.

SUPERINTENDENT for plaster mill; must be high grade man with executive ability. Salary \$800-\$400 per month. Location central west. Z-267.

MECHANICAL DRAFTSMAN; man experienced in the theory and design of steam engines preferred. Write stating qualifications and salary desired. Location New Jersey. Z-270.

INSTRUCTOR; man with at least two years' technical engineering training and experience in auto repairing and vulcanizing desired to teach blind soldiers that sort of work. Salary \$125 per month or more and an engagement for one year. Location Baltimore, Md. Z-275.

ENGINEERING DRAFTSMAN for position with company manufacturing heavy saw mill machinery and doing oil refinery work. Location Texas. Z-276.

INDUSTRIAL ENGINEER who has specialized in construction or operation of plants for manufacture of soap powders and washing powders. Present plant of concern is operating in southern California, but it is proposed to build on a different site the most modern plants, both as to buildings and equipment, on the coast. Firm of industrial engineers would be considered for the work. Z-278.

QUANTITY SURVEYOR to estimate amount of material necessary for construction from plans. Must know prices of building materials, and be able to analyze bids. Industrial experience desirable. Would work with architect. Permanent position. Location Buffalo, New York. Z-230.

DESIGNER of machinery; mechanical engineer, 30-35 years of age, desired. Location New York City. Z-282.

PLANT OR WORKS ENGINEER; mechanical engineer with experience as works engineer or assistant to works or chief engineer; to assume supervision of mechanics, draftsmen, electricians and general plant maintenance and construction, also generation and distribution of power, etc. Position is with large concern where prospects are good. Experience with chemical or textile plants desirable although not essential. State experience in full, salary desired and when available. Location Cleveland, Ohio. Z-287.

SALES ENGINEER; recent mechanical engineering graduate, preferably under 25 years of age, to develop for handling line of temperature and humidity-measuring apparatus. Location New York City. Z-288.

DRAFTSMEN wanted by company manufacturing electric traveling cranes, rolling mill machinery, ordnance steel, special machinery, etc. Location Ohio. Z-291.

LARGE MINING CORPORATION, in expectation of increasing force of designing department, New York office, will require several designers, draftsmen, tracers and checkers for smelter, crushing and concentrating plant work. Applications solicited from men having the above or similar experience. Location New York City. Z-292.

MECHANICAL DRAFTSMAN for electrical and mechanical work on steam fittings and electro medical apparatus. Two men with mechanical engineering experience and two with electrical engineering experience desired. Location New York City. Z-294.

TELEPHONE ENGINEER having some operating experience and experience in the valuation of telephone properties. Salary \$3600 per annum. Location Illinois. Z-295.

ENGINEER who is a good rapid draftsman, to work up detail and new things for company manufacturing pumps, pipe valves, fittings and boiler working apparatus. Location Illinois. Z-296.

PURCHASING AGENT for manufacturing plant making lawn mowers. Location New York State. Z-297.

TOOL AND MACHINE DESIGNERS, must have several years' experience in this work. Salary to start per week, \$36-\$46. Location Chicago, Ill. Z-300.

ARCHITECTURAL DRAFTSMEN experienced on industrial buildings. Salary to start per week, \$36-\$41. Location Chicago, Ill. Z-301.

PLANT DRAFTSMEN must have experience as either electrical or pipe draftsmen. Salary to start per week, \$36-\$44. Location Chicago, Ill. Z-302.

MECHANICAL ENGINEERS: prefer men with some shop experience, preferably in manufacture of small intricate parts. Salary to start per week, \$36 and up. Location Chicago, Ill. Z-304.

TELEPHONE ENGINEERS: men with considerable electrical training, preferably on telephone work. Salary to start per week, \$26-\$42. Location Chicago, Ill. Z-305.

MANUFACTURING INVESTIGATORS: should have some technical training and considerable shop experience: must be able to make time studies and plan operations. Salary to start per week, \$34-\$40. Location Chicago, Ill. Z-306.

PROCESS ENGINEER for laying out manufacturing methods for screw drivers and cutlery. Should be technically trained and understand manufacturing methods. Approximate salary \$30-\$40. Location Connecticut. Z-309.

PROCESS ENGINEER for fishing rods or reels. Should be familiar with manufacturing methods and preferably familiar with the manufacturing of fishing tackle and technically trained. Salary \$30-\$40. Z-310.

ESTIMATORS for determining cost of products from information furnished by process engineers. Preferably familiar with estimating, but if technically trained, estimating experience not essential. Salary \$25-\$35. Z-311.

GAGE ENGINEER for determining the number and types of gages necessary for manufacturing. Should understand gage making and designing, and should be familiar with manufacturing methods. Salary \$30-\$40. Location Connecticut. Z-312.

CARTRIDGE-PROCESS ENGINEER to assist more experienced engineer in establishing methods for manufacturing metallic and paper shells. Should be familiar with press work, and if possible experienced in working brass or other similar metals. Salary \$30-\$35. Location Connecticut. Z-313.

CUTLERY PROCESS ENGINEER for establishing and improving methods for manufacturing pocket knives. Should be experienced toolmaker and familiar with general manufacturing methods. Technical training preferred. Salary \$30-\$40. Location Connecticut. Z-314.

ENGINEER for developing packing specifications. Should be familiar with manufacturing of paper boxes, cartons, etc. Salary \$28-\$35. Location Connecticut. Z-315.

MALE EMPLOYMENT MAN to interview candidates and hire them for shop work. Must have had shop experience and be able to handle men. Location Connecticut. Z-316.

DRAFTSMEN AND DETAILERS; experienced jig and fixture designers wanted for work in Connecticut. Apply by letter, stating age and experience. Salary \$35-\$45 per week according to experience and ability. Z-317.

MACHINERY PURCHASING AGENT for large manufacturing company in the East. Technical graduate not over thirty-five years of age with knowledge of sources of supply and construction of both small and heavy machinery and tools of all descriptions. Knowledge of rubber machinery preferred but not essential. Give references and salary expected to start. Z-318.

INDUSTRIAL PLANT DRAFTSMAN familiar with power plant work, machinery installation and building design for large and progressive concern located in the south. Salary \$45 per week. For particulars address General Superintendent, P. O. Box 1579, Savannah, Ga. Z-321.

SEVERAL DRAFTSMEN, all grades, familiar with merchant and naval-marine installations. College men with other experience considered. Location Pennsylvania. Z-322.

GOOD OPENINGS WITH CEMENT PLANT for mechanical draftsmen and designers familiar with elevating and conveying machinery and general plant layout. In reply state age, nationality, education, experience, salary expected, and how soon available. Location Pennsylvania. Z-324.

CHEMICAL ENGINEER with two or three years' experience in manufacture of heavy chemicals, more preferably acids; this man at first to be an assistant to general sales engineer, afterwards to go to one of the district offices as district office engineer. Salary to start will be moderate, but unusual opportunity for early advancement. Technical education, of course, is virtually essential. Location Ohio. Z-325.

PURCHASING AGENT with engineering education, and experience in the purchasing of materials used in engineering and construction work, such as power plant and factory construction and equipment. Man twenty-eight or thirty years old preferred. Location New York City. Z-329.

METALLURGICAL CHEMIST competent to assist in the development of new metallurgical testing laboratory, and to superintend metal-

surgical testing work. Laboratory is contemplated for purpose of testing artillery ammunition metal components. These will include shell material (steel, semi-steel and cast iron), fuse material (brass), and other material of similar nature. It is proposed to handle all chemical analysis and testing of this class of material and the usual physical tests, such as tensile strength, compression, Brinell hardness, photomicrographic, etc. Young man recently graduated from the metallurgical department of high-grade institution desired to grow up with development of the laboratory. Salary about \$2200 to start. Z-330.

OPERATING ENGINEER to take charge of eight-hour shift in a 30,000-kw. central station. Young technical man if possible, to handle the system of scientific control which it is hoped to install. Position will pay about \$165 per month. The shifts are working 8 hours, and the men have a Sunday off every third week, so that the position really is a little better than the average operating job. Location Pennsylvania. Z-331.

ENGINEER experienced in plane triangulation. After laying out the system in the field, according to the man, he will serve as chief of party on property surveys, or be assigned to the office as draftsman on the same work. Location West Virginia. Z-332.

ARCHITECTURAL DRAFTSMAN experienced in general construction work, preferably with experience around coal mines, who is enough of an architect to design slightly buildings. Location W. Va. Z-333.

CHIEF DRAFTSMAN who will be in charge of all draftsmen in civil, mechanical and electrical departments of industrial concern. Will need to have had broad experience in industrial-plant engineering, and be able to assist and direct draftsmen on layouts of mechanical and electrical equipment consisting principally of conveying machinery, milling and mixing equipment layouts, high-pressure hydraulic equipment consisting of high-pressure pumps, extruders, accumulators, and the pipe lines connecting same, high-pressure and low pressure steam lines and equipment, power-plant equipment, power-generating plants, and general building design work. Location Cleveland, Ohio. Z-335.

MECHANICAL ENGINEER who can specialize on layouts for all mechanical equipment used in factories. Will need to do considerable work on the board; at least half of time will be devoted to such work, the remainder in assisting our present engineer in making up estimates, reports and investigations of conditions at various factories. Location Cleveland, Ohio. Z-336.

MECHANICAL DRAFTSMAN to spend all of his time on layout and design work for mechanical equipment. Location Cleveland, Ohio. Z-337.

TOOL AND MACHINE DESIGNER—A large manufacturing concern has an opening for several first-class tool and machine designers. Must have experience on punch and die work, and special machinery. In reply state age, salary desired, previous business experience, etc. Location Cleveland, Ohio. Z-339.

EASTERN CONCERN opening up complete gear-manufacturing department needs services of experienced estimator or engineer familiar with spur, worm and herringbone gear business, and capable of taking care of estimates and correspondence. Location Maryland. Z-341.

ESTIMATOR experienced in steam boilers and steel-plate work. State age, experience, salary expected and whether married or single. Southern location. Z-352.

TECHNICAL ADVERTISING MANAGER with first-class record of past service and a thorough knowledge of power-plant practice. Unusual opening for a man with brains and desire to settle permanently in the future. State minimum salary. A real job for a real man with snap and initiative. Z-353.

STRUCTURAL ENGINEER for office work to figure loads and stresses. Must be technical graduate with one or two years' experience in

structural steel or reinforced concrete. Location New Haven. Z-355.

ASSOCIATE PROFESSOR OF MECHANICAL ENGINEERING—Mechanical engineering graduate who has had some practical experience and some teaching experience. Practical experience should be in shops, etc., along production lines. Railway mechanical engineering experience also very desirable. Must be resourceful, tactful, energetic and dependable, and able to get along with associates and with students. Salary \$2250 for the year, of nine months. Location Texas. Z-361.

INSTRUCTOR for classes in machine design, to begin work as soon as possible. Work involves class-room and drafting-room work in kinematics and junior machine design. Bachelor's degree in mechanical engineering from recognized engineering school necessary for consideration. Recent graduate will be satisfactory. Some commercial drafting room experience desirable but not necessary. Previous teaching experience not necessary. Salary depends upon man. Z-367.

STATIONARY ENGINEER to train ex-soldiers in that line of work, in southern educational institution. In applying state training and experience, date available, and salary expected. Z-370.

MECHANICAL ENGINEER; well-established builder of a.c. and d.c. generators and motors. Desire high-class man experienced in mechanical design of electrical machinery. Immediate opening. Location Ohio. Z-371.

TOOL DESIGNER, capable of assisting mechanical superintendent in the design and standardization of tools for manufacturing small, interchangeable wire and sheet metal parts. The applicant must be a man of practical experience, thoroughly equipped, age between 30 and 40. Location Massachusetts. Z-372.

SALES ENGINEERS to handle line of pneumatic tools. Location New York City. Z-373.

MECHANICAL ENGINEER experienced in design and manufacture of internal-combustion engines, and if possible familiar with farm tractor business. Location Buffalo, N. Y. Z-375.

MECHANICAL ENGINEERS, technical graduates, with few years' experience; (A) one man for general engineering work, (B) one for special work in connection with investigation of new industrial applications of company's standard apparatus, and (C) one for engineering sales work, to handle inside sales, details and correspondence of important department. Location New York City. Z-377.

MACHINE DESIGNER, experienced on printing machinery or medium-weight automatic machinery. No calculations. Some machine-shop experience desirable but not essential. Location New York City. Z-378.

RECENT GRADUATE from some reputable technical school, whose training has been in mechanical or electrical engineering and who would fit into power-plant work, covering tests, analysis, design and construction. Location Connecticut. Z-382.

PLANT ENGINEER, young man, technical graduate, with 6 or 8 years' practical experience, and capable of taking entire charge of construction and maintenance of cloth finishing plant of considerable size. Location Rhode Island. Z-388.

SQUAD BOSS for drafting room. Man capable of designing all kinds of elevators, conveyors and power transmission machinery, also experienced in checking and directing the work of detailers and tracers. State in first letter education, experience in detail, age, nationality, salary required and when available. Address Meese and Gottfried Co., 660 Mission St., San Francisco, Cal. Z-384.

INDUSTRIAL ENGINEER; technically-trained men to become efficiency and cost expert for wood-working association. Employment by year with expenses paid. Traveling mostly in Central Western section. Address Thomas D. Perry, Grand Rapids, Mich. Z-385.

INDUSTRIAL ENGINEER; young technical graduate with 1 or 2 years' experience in pro-

duction and time study work. Opportunity good. Location Central New York, in large factory making small interchangeable parts. Z-386.

CONSTRUCTION ENGINEER, preferably of college or technical training, with experience in handling of material coming into the construction of power houses and sub-stations along mechanical lines from driving the piling to completing the stacks. Should be conversant with design so as to be able at least to make initial computations to check designs against constructional experience. Organization is such that man is not only brought closely in contact with design work but is given opportunity to familiarize himself with operating conditions. Location Rhode Island. Z-388.

POWER-HOUSE SUPERINTENDENT, with first-class license and acquainted with up-to-date power plant practices, connected with production of steam, electricity and refrigeration. Technical graduate preferred. Location Massachusetts. Z-391.

SUPERINTENDENT—Factory in New England manufacturing small machinists' tools, at present employing about 200 but with excellent prospects for increase, has position for superintendent, who is anxious to firmly and permanently establish himself and who has ability to eventually assume full charge of manufacturing end of business. Requirements: familiarity with production of similarly accurate small pieces of high quality; proven ability in handling employers; proven ability in mechanical lines with reference to standard and special machinery for efficiently doing work. When applying give full information, and especially full detailed record of past employment. Z-394.

OPERATING ENGINEER for power plant of large manufacturing establishment. Location New Jersey. Z-395.

ENGINEER to take charge of textile machinery. Graduate of technical school of recognized standing, who has had experience, preferably in textile mills or bleacheries, desired. Location New York City. Z-396.

YOUNG MAN, with some engineering experience, desirous of securing position where there is an opportunity to take up sales work with industrial concern. Location New York City. Z-397.

DRAFTSMEN with considerable experience in heating and ventilating work. Location New York City. Z-398.

MECHANICAL ENGINEER OR MASTER MECHANIC with good shop-practice training, capable of supervising and directing the operation of shops consisting of equipped machine shop—30 mechanics, and equipped carpenter shop—20 carpenters. Duties of position are to maintain existing plant buildings, machinery, tools, furniture and fixtures, construct special tools and equipment, and erect new plant equipment. Capable, energetic, determined director, not over 45 years of age, willing to start at salary not over \$4000 per year. Z-400.

DESIGNERS AND DRAFTSMEN with extensive experience in power plant piping work. Location Atlanta, Ga. Z-401.

ENGINEERING DRAFTSMEN with considerable direct experience on map work; good letterers; quick and accurate understanding plotting from field notes, property surveys, computations, etc. Location Delaware. Z-405.

STRUCTURAL ENGINEER familiar with designing of steel and reinforced concrete buildings. Essential that the applicants be engineer graduates. Location Philadelphia, Pa. Z-406.

TOOL DESIGNERS; must be experienced; 80c per hour; 48 hours per week. Location New York State. Z-407.

MECHANICAL DESIGNER, able and experienced, preferably with a mechanical engineering degree. Position is one of responsibility and calls for familiarity with chemical-plant layout work. Will pay up to \$50 per week depending upon qualifications. Location New York City. Z-409.

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DESIGNERS for industrial-plant layout work, including machine and equipment location, small power plant work, and some building and structural steel work. Location New York City. Z-410.

SALES ENGINEER with experience in sales and good knowledge of steam engineering. Job would be to specialize particularly on sale of Uniflow and other types of engines, fire tube and water tube boilers, valves regulators and other accessories. Compensation on commission basis, salary and expenses. Position should easily net \$4000 or more a year. Location New York State. Z-411.

DESIGNER; must be experienced in sawmill machinery and able to get designs ready for shop without supervisor. Mill contractor specialist cannot fill position. Location Michigan, 250 miles north of Chicago. Z-414.

DRAFTSMAN for heavy reciprocating machine-pumps; engine or crane work experience would be acceptable. Location Michigan, 250 miles north of Chicago. Z-415.

EXPERIENCED DRAFTSMAN, thoroughly familiar in raw sugar and refinery work, wanted at once for position in New York. Give full particulars. Z-416.

GENERAL FOREMAN OR OPERATION SUPERVISOR for machine-tool works, manufacturing lathes, screw machines, universal grinders, etc. Must be very good mechanic, with ingenuity, long experience and good judgment for suggesting best way of performing each machine operation, and jigs and tools required. Must be especially competent in trying out the highest possible speed of each operation, and in determining highest speed of production that can be maintained safely. Will have charge of set-up, speed setting and progress inspection. Location Massachusetts. Z-417.

EXECUTIVE SECRETARY—We have an attractive opening, probably to locate at our Cleveland office, for a technically-educated man, preferably between 30 and 35 years old, who has broad experience in manufacturing business using steel as raw material. Familiarity with cost accounting, sales, statistics and general administrative features of such business essential. Candidates must possess ability to meet and tactfully deal with business executives, and a ready command of written English. In reply state age, college or technical school from which graduated, date and degree, whether married or single, specific chronological account of business experience, present and expected salary. SCOVELL, WELLINGTON & COMPANY, Certified Public Accountants and Industrial Engineers, New York, Boston, Springfield, Cleveland, Chicago. Address reply to 110 State St., Boston, Mass. Z-418.

MACHINE DESIGNERS to go ahead and design machines from the ground up when furnished with necessary data on requirements. Would be called upon to design fine tool machines. Location Massachusetts. Z-424.

SHOP SUPERINTENDENT for company manufacturing general line of machinery; must understand machine shop, foundry and plate work. Exceptional opportunity for right man. Location Canada. Z-425.

YOUNG MAN with technical education to break in as a safety engineer for an industrial plant. Location Massachusetts. Z-426.

ESTIMATORS experienced in building construction work and in general equipment work. Location Delaware. Z-427.

GENERAL ARRANGEMENT DRAFTSMEN, first class for work on mechanical and chemical layout; should have experience with piping, installation of chemical apparatus, mechanical transmission and general engineering drafting. Should possess originality, ambition and initiative. Location Delaware. Z-428.

REINFORCED-CONCRETE DRAFTSMAN familiar with factory buildings, office buildings, coal and ash hoppers, etc., and preferably with some designing experience. Location Delaware. Z-429.

REINFORCED-CONCRETE DRAFTSMAN with

experience in designing concrete forms for all kinds of concrete work. Location Delaware. Z-430.

MECHANICAL DRAFTSMAN experienced in machine design, both designing and detail, and, if possible, with some experience in general arrangement and layout work. Location Delaware. Z-431.

MECHANICAL DRAFTSMEN experienced in heating and ventilating work. Location Delaware. Z-432.

ENGINEER experienced in time study for position with factory manufacturing all kinds of wire for electrical purposes. Location New York State. Z-433.

DESIGNING DRAFTSMAN with heating and ventilating experience. Duties will comprise both field and board work. Salary \$40 plus per week. Location New York City. Z-435.

RECENT MECHANICAL ENGINEERING GRADUATE for position with explosives-manufacturing company. Location New York City. Z-436.

DESIGNER for paper-mill machinery. Must be experienced A No. 1 man. Location Wisconsin. Z-437.

CIVIL ENGINEERS with broad construction and executive experience for work in Wilmington. These must be men not only possessing technical knowledge and ability, but also good business judgment, tact and strong executive capacity. Z-439.

CIVIL ENGINEERS to take charge of outside work. Experience in modern factory building construction and good executive ability essential. Location Delaware. Z-440.

PROJECT ENGINEERS with engineering education and broad general engineering experience. Knowledge of design work essential. Duties consist roughly of taking charge of projects from their inception through the preliminary drawings and estimates to finished drawings and specification. Location Delaware. Z-441.

MECHANICAL AND ELECTRICAL ENGINEER familiar with designs and construction of factory power plants, heating systems, and general lighting and power wiring for industrial plants. Work will consist of supervision of design and installation of mechanical and electrical features of industrial plant equipment. Location one of largest cities of southeastern Canada. Z-442.

MAINTENANCE ENGINEER to have entire charge of repair shop and to organize maintenance work. Must be graduate mechanical engineer with 4 to 5 years' experience. Location New Jersey. Z-445.

STRUCTURAL DRAFTSMAN AND TWO DETAILERS OR TRACERS; (A) position of structural draftsman will be principally on crane work, at hourly rate which will net \$43 a week; (B) technical graduates just out of school can qualify as detailers and tracers at an hourly rate which will net \$25 per week. Company employs 650 men. Plant is located in small village 18 miles north of Elmira, N. Y. Z-447-A&B.

MECHANICAL OR ELECTRICAL ENGINEER with good knowledge of general power-plant work for board work. Salary \$45-\$50. Location New York City. Z-451.

BUILDING AND STRUCTURAL DRAFTSMEN AND DESIGNERS. To be used on miscellaneous building structures such as are found in manufacturing plant. Men experienced in structural-steel and reinforced concrete design required. Starting salaries approximately \$200 to \$225 per month. Location Ohio. Z-452.

HEATING AND VENTILATING DRAFTSMEN AND ENGINEERS—Starting salary approximately \$200 to \$225 per month. Location Ohio. Z-453.

PATENT DRAFTSMAN, young man who has had experience on patent drawings. Starting salary approximately \$150-\$175 per month. Location Ohio. Z-454.

MACHINE DESIGNERS to be used in connec-

tion with design of rubber machinery and plant equipment. Experience in design of tools, jigs, fixtures or special machinery desirable. Opportunities for advancement very good. Openings are in experimental division of engineering department. Starting salaries not to exceed \$3000 per year. Location Ohio. Z-455.

TIME-STUDY MEN. Two openings in production engineering department. Technically-trained men desirable who have had some experience in time-study work. Starting salaries \$185 to \$225 per month. Location Ohio. Z-456.

MECHANICAL AND ELECTRICAL ENGINEER; should be technical graduate; will be required to handle office details in connection with power program. Will work in as assistant to construction engineer. Starting salary approximately \$200-\$250 per month. Location Ohio. Z-457.

MAINTENANCE INSPECTOR to work in connection with construction and maintenance of necessary machinery in part of industrial plant. Machine shop experience and general engineering education desirable. Starting salary approximately \$175-\$225 per month. Location Ohio. Z-459.

BUILDING ESTIMATOR; man 28 to 30 years old who has had estimating experience desired. Starting salary approximately \$175 per month. Location Ohio. Z-460.

SAFETY INSPECTOR to be used in accident prevention and sanitation departments. Experience on machine design desirable. Should be technical graduate. Starting salary approximately \$175 to \$225 per month. Location Ohio. Z-461.

MACHINE-SHOP INSPECTORS; young men who have had at least two years' practical machine shop experience. Starting salaries about \$125 per month. Location Ohio. Z-463.

MECHANICAL ENGINEER to assist in research work on sugar equipment, especially on forced draft blowers for power plant boiler rooms and boiler testing. Location New York City. Z-469.

MACHINE TOOL DESIGNER; experienced in engine lathe design. Must have designed machine tools of standard quality. Location New York State. Z-472.

ASSISTANT PROFESSOR OF MINING, graduate in mining engineering, practical experience, and also preferably teaching experience and who desires to remain in the teaching profession. Position opening in September 1920. Salary \$2500 per year. Location Ohio. Z-474.

INSTRUCTOR IN MINING AND METALLURGY. Graduate in mining engineering with some practical experience. Salary \$1600 to \$1800 per year. One position open immediately and one next September. Location Ohio. Z-475.

RECENT GRADUATES OF MECHANICAL OR ELECTRICAL ENGINEERING COURSES for engineering work connected with production of electrical and mechanical devices. Send application to Mr. J. C. Wilson, the Cutler Hammer Mfg. Co., Milwaukee. State training, experience in industrial plants, if any, references and other information concerning yourself. Z-476.

DISTRICT ENGINEER to take charge of district with two residences constructing macadam highways by Administration. Two resident engineers are already carrying on this work. In addition, in this district there is under construction a reinforced concrete wharf 700 ft. x 80 ft., over which district engineer will have direct charge, with an assistant engineer. Necessary that man should be familiar with Spanish. Salary \$300 per month. House will be rented in town for office purposes in which he may live. Must agree to stay with the department for at least six months, and on this condition steamer fare to Santo Domingo will be paid. Z-477.

RESIDENT ENGINEERS with experience on highway construction and location, and in addition experienced in connection with construction and designing of sewer and water

systems for small cities with population of about 30,000. Should be familiar with Spanish. Salary \$250 per month with increase to \$275 within four months, provided services are satisfactory. Expenses paid when away from headquarters. Transportation from New York to Santo Domingo will be paid. Salary will commence upon the date of sailing from New York. Will be required to stay at least six months with the department, otherwise passage fare from New York to Santo Domingo will be deducted from salary. Z-478.

GROWING—PROGRESSIVE CORPORATION is prepared to develop, manufacture and market a few additional products, preferably small devices, used in electric power plant construction. Will consider adding to its staff engineer with such devices or ideas so as to assist in their development. Location Pennsylvania. Z-479.

MECHANICAL ENGINEER qualified to supervise operation of a number of Diesel stations for public utility. Generating stations are under general supervision of the power department, however, services of man to devote his entire time to inspection and general direction of Diesel operation desired. Must know maintenance and how to work out individual schedules; should be fair machinist, and must above all else have personality plus to get the respect and cooperation of the men in the field. Man who has had Diesel maintenance and erection experience with a manufacturer preferred. Good judgment and horse sense are prime requisites. Location Texas. Z-483.

SENIOR DRAFTSMAN; must be thoroughly competent and preferably have experience in designing machinery, buildings and necessary equipment commonly used in copper smelters and refineries. Salary \$2500 per year to properly qualified man. Location New Jersey. Z-484.

DRAFTSMEN WANTED FOR PANAMA CANAL—Two electrical draftsmen, one experienced in underground power distribution and building illumination and one power plant designer. Advise minimum salary will accept. One marine machinery draftsman, \$208 month. Applicants must be thoroughly experienced in special lines above indicated. American citizens (final papers) under 50 years of age, in good health. Free steamship transportation from New York or New Orleans, salary beginning date of sailing. Write "Chief of Office, The Panama Canal, Washington, D. C." Z-485.

ENGINEER to study the utilization and prevention of waste material in cutting metals. Man engaged in metal stamping would have the desired experience. Location New Jersey. Z-486.

ENGINEER for the study of polishing methods and equipment. Should have knowledge of abrasives. Mechanical or chemical engineer would be best suited for this work. Location New Jersey. Z-487.

SALES ENGINEER, at least 30 years of age; preferably with experience in industrial furnaces. Position may lead to that of sales manager in U. S. territory. State age, experience, remuneration, and references. Z-488.

SALES ENGINEER, young man, graduate of technical college, to sell power-plant equipment. Sales experience not necessary; recent graduate would be considered. Work would require some supervision. To right man position would lead to an interest in the business. Territory covered between New York and Washington, headquarters in Philadelphia. Give full particulars in first letter. Z-489.

MACHINE-TOOL DESIGNER AND ENGINEER; must be first-class and have had experience along lines of high grade engine lathes. Man who has designed machine tools and can show machines in successful operation desired. Technical graduate preferred, but this is not essential. Required that applicant be well grounded in the principles of mechanics. Location New York State. Z-490.

LARGE INDUSTRIAL CONCERN wants first-class mechanical draftsmen, who would also be able to do some architectural drawing.

MECHANICAL ENGINEERING

Should be an engineer, practical and able to follow up construction work if necessary. Prefer man between 25 and 36 years of age. In answering give qualifications, experience and salary wanted. Location Georgia. Z-491.

DRAFTSMAN; preferably with technical education and experience in plate and boiler construction. Experience is not necessary if applicant has mechanical education. Location Tennessee. Z-492.

PRODUCTION ENGINEER not less than 30 years of age who has an established record for producing results. Man who can demonstrate that he can get production through shop in proper manner desired. Consideration only given to letters specifying where employed during the last 10 years, name of active head of the company, and salary expected. Z-493.

COMBUSTION ENGINEER with technical steam-plant experience; one familiar with stokers and oil heating. Executive experience preferred. Location Boston and New York. Apply by letter. Z-494.

BUYER for large and growing machinery manufacturing concern in the East. Applicant must have special experience in purchasing and following up large and small castings and patterns. State full qualifications, experience, age, salary expected and give reference. Good opportunity for a man with the right qualifications. Location New Jersey. Z-496.

MECHANICAL DRAFTSMAN for position with copper-mining company. Pay will be from \$200 to \$230 per month, including special payment due to high price of copper. Make application in writing, stating full details regarding self and experience, and give references. Location Arizona. Z-497.

ASSISTANT PLANT ENGINEER for large tannery. Work will consist of laying out on drafting table factory power drives, and following up with direction of work as it is installed. Man capable of handling men and making himself useful as all around assistant desired. Opportunity for technical or non-technical man, providing he is live wire. Location New York State. Z-499.

FOUNDRY SUPERINTENDENT, manufacturing corporation located in central New York requires superintendent for its gray-iron foundry. Department employs about 350 men, and melts approximately 120 tons per day. Union shop. Product is mostly repetition work, light to medium; 1200 pounds maximum. Intelligent, active experienced tactful executive, may find this an attractive opening. Address stating approximate salary desired. Z-500.

MEN AVAILABLE

Only members of the Society are listed in the published notices of this section. Copy for notices should be on hand by the 12th of the month, and the form of notice should be such that the initial words indicate the classification. Notices are not repeated in consecutive issues.

EXECUTIVE ENGINEER; age 39; technical graduate; open for engagement with progressive organization. Has had exceptional experience in manufacture of mechanical rubber goods and rubber insulated wires and cables. Experienced in factory lay-outs and standardization methods. Has successfully handled labor and organization problems; installed effective methods for increasing production. Eastern location preferred. SM-5100.

EMPLOYMENT MANAGER; experienced in organizing and maintaining a personnel department; understands present day employment problems and has had manufacturing and employment management experience. SM-5101.

MECHANICAL ENGINEER AND EXECUTIVE; age 31; technical and practical experience covering 15 years upon design and manufacture of special automatic machinery, machine tools, jigs, fixtures and dies, plant layout and production methods; desires opening as engineer, chief draftsman or assistant to executive in above lines. SM-5102.

GRADUATE MECHANICAL ENGINEER; five

years of varied experience in lumber and steel industries. At present employed as executive in manufacturing division. Desires position which will eventually lead to manager of sales or production. Single, age 28. SM-5103.

PRODUCTION ENGINEER; age 26; married; junior member; competent to install all phases of modern production and control methods; time study, rate setting, etc.; now employed as production engineer of motor truck company. Ex-service man. Desires permanent connection with progressive concern offering attractive future. Available on 30 days' notice. Salary \$3000. SM-5104.

CHIEF DRAFTSMAN; at present employed; six years' experience on tools, jigs, fixtures and dies; instruments and small automatic machinery; interchangeable parts manufacturing and modern factory layouts of production and assembly units. Would prefer connection as assistant to manager or superintendent. Position must require a hard worker. Location, New York City. SM-5105.

MECHANICAL ENGINEER; M. I. T., age 25, married. Familiar with manufacture and testing of air compressors, pneumatic tools and coal mining machinery. Over two years' at Government institution, where at present located, in aeronautic research and development work, particularly application and development of automatic mechanism. Has executive ability and has managed small instrument shop. SM-5106.

MECHANICAL ENGINEER; 15 years' experience in design, erection and operation of power plants and industrial machinery. Several years' experience in installation and operation of electric motors and high tension transmission lines. Special training in combustion problems. Considerable experience in handling men in executive capacity. Desires to locate with large manufacturing plant. SM-5107.

MECHANICAL ENGINEER OR EXECUTIVE; 15 years' experience along mechanical, electrical and metallurgical lines. Experience covers plant and power-house construction and maintenance, steel-making furnace construction and operation as well as steel foundry. In steel foundry from master mechanic to general superintendent. Wishes to locate in Middle West city of medium size. SM-5108.

MAINTENANCE OR PLANT ENGINEER; American, age 39; technical education; 12 years' building construction experience, divided between field and office; 5 years in mechanical lines, including power-plant, producer gas, refrigeration and maintenance. Special ability in solving plant mechanical troubles. SM-5109.

MECHANICAL ENGINEER; Cornell, 1913, desires engineering, executive or sales engineering position. Four years electrochemical manufacturing experience, as mechanical superintendent and assistant to acting general manager. Two years general smelter, concentrator and power plant design. SM-5110.

RESEARCH ENGINEER AND SHOP EXECUTIVE; technical graduate in mechanical and electrical science, with fifteen years' experience in conducting experimental work and in reduction of devices and processes to sound engineering practice. Is thoroughly familiar with manufacturing problems and economic relationships between development work and production output. Preferred location, Philadelphia or New York. SM-5111.

TECHNICAL YOUNG MAN; executive with large manufacturing firm located in New York City controlling entire quality of an internationally known article desires change, preferably as sales service engineer for suppliers in brass and copper goods. Has had shop experience and the handling of manufacturing problems, especially inspection. Five years with present concern. SM-5112.

SUPERINTENDENT OR WORKS MANAGER; with over fifteen years' experience power plant construction and operation, factory construction and concrete construction of every description; at present with U. S. S. B. as plant engineer; will go to South or Central Amer-

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ica; slight knowledge of Spanish, thoroughly familiar with colored labor and conditions in South. SM-5113.

PRODUCTION ENGINEER; has worked for six years under direction of leading management engineer; desires position as management or production engineer. Location preferred, Springfield or Worcester, Mass., but will consider elsewhere. Salary \$3600 per year minimum. Mechanical engineering education; member; married. SM-5114.

MECHANICAL ENGINEER; Cornell graduate; age 31; nine years' experience in power plant work, testing, inspection, combustion problems, fuels, sales and executive office work, desires position as assistant to executive or plant superintendent. Available on 30 days' notice. Location, New York or vicinity. SM-5115.

MECHANICAL ENGINEER; experienced in design, construction and production of wood and steel cars and auto truck bodies. Fourteen years' experience entire charge of operating factory. Desires position as manager of small business or factory manager of large company. Can assure results. Best of references. SM-5116.

WORKS MANAGER OR ASSISTANT; experienced in production control methods, time study and bonus work, and labor problems. At present with factory of 1000 employees. Location preferred, Middle West or South. Salary minimum \$4000. SM-5117.

PLANT ENGINEER AND MANUFACTURING EXECUTIVE; technical graduate; fifteen years' general engineering and contracting experience. At present in entire charge of all construction and maintenance for very large tool manufacturing concern. Used to extensive responsibilities along these and similar lines. Particularly familiar with shipyard management and vessel repairing. Desires immediate change from unhealthful location for family's welfare. SM-5118.

MECHANICAL AND COMBUSTION ENGINEER; American, 27 years old, technical graduate, at present assistant to one of foremost steam power plant engineers in Middle West. Experience consists of design and maintenance of wire mill equipment and their boiler and power plants. Prefer location in Middle West. Salary to start to suit responsibilities. SM-5119.

SALES OR ASSISTANT PRODUCTION ENGINEER; technical graduate; four years as assistant to consulting engineers of railway power and car equipment; production planning and organization consultant for large factory, 35,000 units daily output. Anxious to represent sale of engineering specialty. Minimum salary \$2600. Age 28 years. SM-5120.

POWER PLANT ENGINEER; graduate, age 34, ten years' experience in power plant estimating, design, construction and operation, also in detail design of all first-class prime movers; just returning from reconstruction work in Europe; desires position as executive or mechanical expert in established consulting engineers office. Location, immaterial, traveling no objection. Salary commensurate with responsibility. SM-5121.

ASSISTANT EXECUTIVE; age 28; married. Graduate textile engineer, has had one year experience teaching; 3 years inspecting shops for safety and two years as captain, C. A. Desires position as assistant to superintendent or manager with prospects for advancement. Location, Massachusetts. SM-5122.

ASSISTANT TO SUPERINTENDENT or Production Engineer; technical graduate in mechanical engineering, age 25; over 2 years' excellent experience in machine shop of 4000 men as assistant production engineer on ordnance and general machine shop practice. Salary \$3000. SM-5123.

SUPERINTENDENT OR MANAGER; technically trained engineer in addition to being practical mechanic; 20 years' varied experience in essential and special branches; exceptional ability for getting best results from men and equipment, in established concern or working

out new enterprises. Desires connection with reliable party in need of high-grade service. SM-5124.

MECHANICAL ENGINEER; technical graduate, age 25, married, desires position as assistant engineer on industrial work. Four years' experience estimating and design of plant installation, ordnance, etc. Salary \$2700. Location, New York or vicinity. SM-5125.

EXECUTIVE; 32 years old, experienced in the various departments of industry, including shop management, engineering and sales. Now employed. Qualified to be works executive, office manager or district manager for manufacturer. SM-5126.

MECHANICAL ENGINEER; M. I. T. graduate; age 27; two years' experience on application and development work testing of small motors and works management engineer for manufacturing plant. At present employed. Desires to get into production and management work or position along executive lines with an industrial concern. SM-5127.

MECHANICAL AND EXPERIMENTAL ENGINEER; technical graduate; age 32; married. One year power plant experience. Two years' machine shop and instrument makers' work. Two years' experience on design, installation and maintenance of heavy cement mill and pulverized coal burning machinery. Four years' testing and experimental work on materials and machinery. One year experimental and development work on new devices and machinery. Can handle men and produce results. Location desired, Central or Western States. SM-5128.

GRADUATE MECHANICAL ENGINEER; at present head of section in mechanical engineering department of large, well-known manufacturing concern. Four years' experience covering development of improved mechanical and plant equipment and methods for manufacturing work. Work has covered both metal and wood-working departments. Thoroughly familiar with plant organization, operation and management. Chicago or Philadelphia preferred, but will consider other locations. SM-5129.

MANUFACTURERS AGENT; graduate M. E. has office on Fifth Avenue, New York City; seventeen years' broad experience in arts and requirements of construction work; steam, oil and hydro-electric power and electric railway construction and operation; recently in Army, A. E. F.; has large acquaintance among architects, engineers and contractors; seeks to represent large manufacturers of standard merchandise for Eastern territory. SM-5130.

DESIGNING ENGINEER; 8 years' experience on heavy machinery, including machine tools, rolling mills, hydraulic machinery, conveying machinery, cranes, etc.; 6 years' experience on building construction and plant layouts; 4 years as machinist. Qualified to take charge of designing force and to develop new lines; technical graduate; preferred location, central or western New York or eastern Ohio. SM-5131.

MARINE AND TECHNICAL ENGINEER; age 38, married; graduate of M. I. T., twelve years' experience in ship construction, dredging and mechanical maintenance and operation of factories and power plants as engineer, superintendent and manager. Now in marine field in executive position involving both engineering and accounting. Connection with growing concern desired. SM-5132.

HIGH GRADE EXECUTIVE; 12 years' experience. Has had complete charge of plants employing up to 6000 people. Thoroughly versed in up-to-date efficient methods of manufacturing and production. Practical engineer. Also thoroughly competent in gray iron and alloy foundry practice. Has had experience on small intricate parts as well as extremely heavy work. Ability and initiative to organize. Age 38. SM-5133.

SALES ENGINEER; wants permanent connection with reputable manufacturer of mechanical product. Willing to spend period at factory to learn product. Has five years' varied engineering and business experience and me-

chanical degree. American, age 28, married. Salary \$3000 first year provided good prospect ahead. SM-5134.

MECHANICAL ENGINEER; technical graduate, age 31. Two years on General Electric Company apprenticeship course; one year teaching engineering subjects, two years assistant to superintendent of inspection and one year and a half chief inspector in charge of 500 inspectors on interchangeable parts. Would like connection with some firm, preferably in central or western New York, not necessarily on inspection work. SM-5135.

DESIGNER; technical graduate University of Illinois, 1917, year and half commercial design experience specializing in original inventions and redesigns. Taking advanced degree at M. I. T. In June 1920 would like engineering work leading to engineering management or advanced research. Location, Seattle. SM-5136.

WORKS ENGINEER OR MANUFACTURING EXECUTIVE; Cornell University graduate; has had more than 10 years' experience in design, construction, operation and maintenance of large industrial plants and has been with consulting engineers and power companies; desires permanent connection in eastern United States where engineering and executive ability can be used to advantage. At present chief engineer for industrial plant in New York. SM-5137.

MECHANICAL ENGINEER; technical graduate, 1½ years' general engineering and manufacturing experience, wishes position with good manufacturing concern in west or middle west where there is opportunity for advancement. Experienced in cast iron work and designing. At present employed as draftsman by firm manufacturing aerial tramways. Best references. SM-5138.

SUPERINTENDENT OR EXECUTIVE ENGINEER; technical graduate; 18 years' general engineering and practical experience in large industrial plants, as power efficiency engineer, superintendent of power plant, works engineer, mechanical superintendent and plant organization. Thoroughly familiar with plant efficiency, plant engineering, general accounting and business methods as applied to industrial plant operations. Good executive, can handle men and get results. SM-5139.

DESIGNER; technical education; 14 years' machine shop and drawing room experience, designing and constructing light and heavy machinery, intricate apparatus, fixtures and labor saving devices. Executive with initiative and good sound mechanical ideas; conversant with modern manufacturing methods, and able to handle development or experimental proposition. Age 32, married, salary \$450 month. SM-5140.

MECHANICAL OR PLANT ENGINEER OR SUPERINTENDENT; age 34, technical education, 10 years' practical experience, including design, reorganization, construction, equipment, operation and maintenance, industrial and power plants, building specifications, estimates and purchases; 3 years with large dairy concern having chain of plants and creameries. Recently discharged technical officer. Employed and married. Desire permanent position with progressive company. Salary open to negotiation. Location, immaterial. SM-5141.

MECHANICAL ENGINEER OR PLANT MANAGER; thirteen years' general engineering experience on: design of special machinery; inspection of raw and finished materials; preparation of specifications; layout of manufacturing plants, marine and railroad repair shops and superintendent of construction and operation; works engineer. Eight years in charge of work of above classes. Now employed as assistant manager of manufacturing plant. Location, immaterial. SM-5142.

MANUFACTURING OR SALES EXECUTIVE; age 34; married; American. 15 years' experience, shop, construction and sales. Successful in organization of plant as well as sale of product. Resourceful and diplomatic. Prefer Automobile or Automobile Parts Company. Location U. S. or Canada. SM-5143.

CANDIDATES FOR MEMBERSHIP

TO BE VOTED ON AFTER MARCH 18, 1920

BELOW is a list of candidates who have filed applications since the date of the last issue of MECHANICAL ENGINEERING. These are arranged geographically. Applications for change of grading are also posted. The total number of applications received and listed below is 199.

The Membership Committee, and in turn the Council, urge the

NEW APPLICATIONS

California

BREED, EVERETT M., Engineer in Sales Department, The Pelton Water Wheel Co., San Francisco
 CARLTON, HENRY T., Consulting Engineer, O'Hara & Shaw, San Francisco
 McCALL, ROGER F., Lieutenant U. S. N. U. S. S. Nebraska, Mare Island
 O'HARA, GEORGE D., Senior Partner, O'Hara & Shaw, San Francisco
 SCHOLEFIELD, CRIGHTON W., Mechanical Engineer, Efficiency Department, Standard Oil Co., Bakersfield
 SMEAD, H. A., Production Engineer, Western Machinery Co., Los Angeles
 SMITH, HOXSIE Y., Instructor, Troop College of Technology, Pasadena
 SNYDER, HOWARD O., Student, Leland Stanford Junior University, Stanford University
 WATTS, CHARLES A., Consulting Engineer, San Francisco

Colorado

ROSS, SAM I., Associate Professor, Colorado Agricultural College, Fort Collins
 STROCK, EARL J., Superintendent, The Colorado Portland Cement Co., Portland

Connecticut

BUCK, HENRY R., President, Ford, Buck & Sheldon, Inc., Hartford
 DONOVAN, WILLIAM T., Designer, Winchester Repeating Arms Co., New Haven
 GUY, ROBERT P., Inspector of Boilers & Engines, Hartford Steam Boiler Inspection & Insurance Co., Hartford
 HENRY, ADDISON B., Burden Distributing Clerk, Winchester Repeating Arms Co., New Haven
 ROBERTSON, JOHN D., Process Engineer, Winchester Repeating Arms Co., New Haven
 SHMIED, ERNEST A., Steam Boiler Inspector, Travelers Insurance Co., Hartford
 SMITH, WARREN P., Instructor in Mechanical Engineering, Sheffield Scientific School, New Haven
 SMITH, WELLS B., Head Inspection Branch, Bridgeport District Ordnance Office, Bridgeport
 STOWELL, AUSTIN L., Engineer Draftsman, Holmes Manufacturing Co., Shelton

District of Columbia

PETERSON, JOHN B., Assistant Physicist, Bureau of Standards, Washington

Georgia

MERKEL, ARTHUR W., Superintendent, Continental Gin Co., Atlanta

Illinois

COLE, BENJAMIN E., Assistant to Vice-President, Chicago Pneumatic Tool Co., Chicago
 FLEMING, LAURENCE T., Senior Mechanical Engineer, Interstate Commerce Commission, Bureau of Valuation, Chicago
 GANNON, JESSE, Chief Engineer, The International Register Co., Chicago
 HAGUE, CLARK E., Sales Manager, American Steam Conveyor Corp., Chicago
 HARPER, ARTHUR C., Associate in Machine Design, University of Illinois, Urbana
 HOOVER, HOWARD E., Chief Engineer, Hoover Suction Sweeper Co., Chicago
 KILEY, LEROY D., Manager, Chicago Branch, Belmont Packing & Rubber Co., Chicago
 LAIRD, ELMER R., Assistant Master Mechanic, Armour Glue Works, Chicago
 VESELY, JOSEPH E., Chicago
 YOUNG, FRED, Draftsman, Frost Manufacturing Co., Galesburg

Indiana

ATWELL, OSWALD B., Chief Efficiency Engineer, Illinois Steel Co., Gary
 LAMCOOL, KARL J., Production Engineer, Chicago, Indianapolis & Louisville Railway, LaFayette

Kansas

SCHANK, HARRY E., Designing Engineer, Pierson Manufacturing Co., Topeka

Louisiana

SWANSON, JOSEPH L., Sales Engineer, Fairbanks, Morse & Co., New Orleans

Maryland

BOWLER, ROLAND T. E., Supervisor Tool Equipment, Baltimore & Ohio Railroad Co., Baltimore

JACKA, EDWIN B., Superintendent Maintenance & Experimental Engineer, Red Cross Institute for the Blind, Baltimore

O'NEIL, LOUIS R., Chief Engineer, Maryland Pressed Steel Co., Hagerstown

SAUER, HERBERT O., Assistant to Electrical Engineer, Consolidated Gas, Electric Light & Power Co., Baltimore

Massachusetts

BAILEY, GEORGE N., Assistant to Superintendent of Steam Power, New England Power Co., Worcester

BASLEY, WILLIAM H., Supervisor of Tools, Worthington Pump & Machinery Corp., Cambridge

CASEY, WILLIAM R., Draftsman, McClintock & Craig, Springfield

CUMMING, STANLEY R., Candidate for M. S. Degree, Massachusetts Institute of Technology, Cambridge

DAVIS, FRANK L., Draftsman, Morgan Construction Co., Worcester

DIXON, WILLIAM E., Plant Engineer, Worthington Pump & Machinery Co., Cambridge

ELLIS, LEON D., Superintendent, Sturtevant Mill Co., Boston

ENGSTROM, KARL E., Ballistic Engineer, U. S. Government, Springfield Armory, Springfield

FLEISHER, SIMON, Assistant Engineer, General Electric Co., Lynn

GALAHAN, FRANCIS B., Engineering Manager, Harry M. Hope Engineering Co., Boston

GREEN, IRVING A., Planning Department Manager, The Wire Goods Co., Worcester

HAHN, CLIFFORD A., Engineer, Stone & Webster, Boston

HART, NELSON W., Office Manager, Worthington Pump & Machinery Corp., Holyoke

JOHNSON, B. F. S., Foreman, Morgan Construction Co., Worcester

MCCLAUGHLIN, CARL P., The Lamson Co., Boston

MORRIS, THOMAS E., Superintending Sanitary Engineer, Wyckoff & Lloyd Co., Springfield

NORTON, EDGAR W., Industrial Engineer & Architect, Worcester

REYLING, GEORGE J., Mechanical Engineer, H. M. Hope Engineering Co., Boston

SEAVIER, EDWARD, JR., Assistant to President, Harry M. Hope Engineering Co., Boston

SVENSON, CARL L., Assistant in Mechanical Engineering, Massachusetts Institute of Technology, Cambridge

THWING, LEROY L., Valuation Engineer, Boston

WATERMAN, JOHN H., Engineer, Charles T. Main, Boston

Michigan

CLOUGH, BERT E., Superintendent of Power, Battle Creek Sanitarium, Battle Creek

members to scrutinize this list with care and advise the Secretary promptly of any objections to the candidates posted. All correspondence in this regard is strictly confidential. Unless objection is made to any of the candidates by March 18, 1920, and provided satisfactory replies have been received from the required number of references, they will be balloted upon by the Council.

COOPER, JAMES H., Experimental Engineer, McCord Manufacturing Co., Detroit
 FLYNN, JOHN A., President, Peninsular Machinery Co., Detroit
 FOX, MILTON R., Student, Assistant in Mechanical Engineering, University of Michigan, Battle Creek
 GAY, LINDSLEY E., Superintendent of Construction & Maintenance, Lincoln Motor Co., Detroit
 HVOSLEF, FREDRIK W., Designing Engineer, U. S. Radiator Corp., Detroit
 MCKINLEY, WILLIAM A., Engineer, Detroit Pressed Steel Co., Detroit
 MILLER, VIRGIL D., Construction Engineer, Burroughs Adding Machine Co., Detroit
 WRIGHT, JAMES A., President, Wright-Fisher Engineering Co., Detroit
 YODER, HOWARD D., Assistant Superintendent, Penberthy Injector Co., Detroit

Minnesota

ENGELKING, WALTER W., Draftsman, American Hoist & Derrick Co., St. Paul
 HASHAGEN, JOHN B., Designer, Minneapolis Steel & Machine Co., Minneapolis
 JOSELOWITZ, HARRY A., Factory Inspector & Safety Engineer, Department of Labor, State of Minnesota, Minneapolis
 SOMMER, WILLIAM B., Draftsman, American Hoist & Derrick Co., St. Paul

Missouri

KUHL, ROBERT J., Engineering Draftsman, Monsanto Chemical Works, St. Louis

Nebraska

CLARK, MCKINLEY F., Production Engineer, Dempster Mill Manufacturing Co., Beatrice
 DEMPSTER, CLYDE B., Factory Manager, Dempster Mill Manufacturing Co., Beatrice
 HILDRETH, NED E., Superintendent, Cushman Motor Works, Lincoln

New Hampshire

EMMONS, LOUIS J., Draftsman, U. S. Navy Yard, Portsmouth
 POTTER, ROBERT E., Supervising Draftsman & Chargeeman, U. S. Navy Yard, Portsmouth
 SCOTT, ALEXANDER, Superintendent of Manufacture, F. P. Lyons Iron Works, Manchester

New Jersey

ALDRICH, JAMES F., Production Manager, National Carbon Co., Inc., Jersey City
 BALCH, SAMUEL W., Mechanical Engineer & Solicitor of Patents, Montclair
 CASTON, GEORGE W., Experimental Mechanical Engineer, E. I. duPont de Nemours & Co., Wilmington
 COBB, ARTHUR, Officer U. S. A., Chief Engineering & Maintenance Division, Picatinny Arsenal, Dover
 DECKER, EDWARD, President, Decker Manufacturing Co., Inc., Newark
 DEVRIES, DANIEL, Master Mechanic, Major Car Corp., Passaic
 DUGAN, SAMUEL A., Mechanical Designer, International Coal Products Corp., Newark
 FRANCK, HERMAN, Jr., Maintenance Engineer, American Locomotive Co., Paterson
 HAUCK, WILLIAM L., Assistant Service Engineer, T. A. Edison, Inc., West Orange
 KOPPELMAN, MORRIS D., Efficiency Engineering, Bijur Motor Appliance Co., Hoboken
 LESLIE, HERBERT, Mechanical Engineer, Standard Oil Co. of N. J., Elizabeth
 SCHORLING, HENRY F., Engineer, General Engineering Department, Standard Oil Co., Elizabeth
 SHOUP, SAMUEL R., Mechanical Engineer, Davis-Watkins Dairymen's Manufacturing Co., Jersey City
 STETTLER, RAY M., Mechanical Engineer, Standard Oil Co., Elizabeth

MECHANICAL ENGINEERING

New York

ALVEN, ALFONS, Assistant Engineer, Hill & Ferguson, New York
 ANSCOTT, WILLIAM, Draftsman, Sperry Gyroscope Co., Brooklyn
 ATKINSON, GEORGE T., Student, Packard Commercial School, New York
 BACON, CHESTER A., Chief Engineer, Brown Products Corp., Auburn
 BARRETT, CHARLES D., District Engineer, Locomotive Stoker Co., New York
 BICK, HAROLD N., Draftsman, Western Electric Co., New York
 BRATT, RALPH T., Sales Engineer, Olney & Warrin, New York
 BULL, DAVID M., Chief Engineer, Oceanic Salvage Corp., New York
 BURHEN, RAYMOND, Lieutenant (Engineer Officer) U. S. N. Y. U. S. S. Bell, New York
 BURNAP, ARKELL, Secretary, Chalmers Knitting Co., Amsterdam
 CASE, PERCIVAL H., Industrial Engineer, Eastman Kodak Co., Rochester
 CHAPMAN, GEORGE T., Mechanical Engineer, Flaxen Fibre-Down Co., N. Tonawanda
 CHASAN, LOUIS H., Chief Draftsman, Shur-Loc Elevator Safety Co., Inc., New York
 CRUSER, F. VAN DYKE, Chief Chemical Engineer, The Diamond Match Co., New York
 DEARBORN, RICHARD J., Patent Attorney, The Texas Co., New York
 DEMAREST, STIRLING J., Machine Designer, Ford Instrument Co., New York
 ELLIS, J. CORSON, Chief Engineer, John Thomson Press Co., Long Island City
 HANKINS, FRANK W., Mechanical Engineer, Columbian Rope Co., Auburn
 HATHAWAY, CHARLES E., Designer, Richmond Levering Engineering Corp., New York
 HENDERSON, ALFRED E., Assistant Engineer, Standard Oil Co., New York
 HENRY, OTTO H., Instructor in Mechanical Laboratory, Polytechnic Institute of Brooklyn, Brooklyn
 HOVEY, WALTER F., Assistant Engineer, Interborough Rapid Transit Co., New York
 JENSEN, SCOTT, Mechanical Engineer, G. D. Jensen Co., New York
 JORDAN, JOHN P., Vice President & Director of Operation, C. E. Knoepfle & Co., New York
 KEMP, CHESTER S., Foreman, Planning Section, Watervliet Arsenal, Watervliet
 LAWRENCE, CHARLES M., Tool & Methods Engineer, Sperry Gyroscope Co., Brooklyn
 LEE, MAYNARD D., Industrial Engineer, Eastman Kodak Co., Rochester
 LEVENTHAL, LEWIS T., Chief Engineer, U. S. S. Auks, U. S. Navy, New York
 McDONALD, DONALD, General Superintendent, American Meter Co., New York
 MONTESER, WALTER R., Partner, Nathan C. Solomon, New York
 NEWCOMB, RAYMOND, Service Engineer, Kewanee Boiler Co., New York
 RICE, CHESTER L., Associate Editor, Iron Age Publishing Co., New York
 SCHOOONMAKER, HERBERT S., Lawyer, Sage & Schoonmaker, New York
 SHIERWOOD, EDWARD L., Major, Secretary, Illuminating Engineering Society, New York
 SPARLING, ERIC C., Assistant Engineer, The Sperry Gyroscope Co., Brooklyn
 TSUJII, MAKOTO, Engineer, Furukawa & Co. Ltd., New York
 WOLFERZ, EDWIN C., Assistant Chief Inspector, U. S. Shipping Board, New York

North Carolina

COTHRAN, JAMES S., Sales Engineer, Representing Parks-Cramer Co., Charlotte
 KERR, DAVID J., Superintendent of Power, The Champion Fibre Co., Canton

Ohio

CHAMBERLAIN, GEORGE E., District Manager, Stone & Webster, Cleveland
 ELLISON, MICHAEL H., Chief Civilian Inspector, U. S. A. Platt Iron Works, Dayton
 FOWLER, JOHN W., Efficiency Engineer, Hays Engineering Co., Columbus
 HOLZ, ROBERT, Chemical Engineer, The Richardson Co., Lockland
 KELLER, CHARLES L., Assistant Operating Manager, The Richardson Co., Lockland
 LUNDY, WILLIAM L., Assistant to Plant Engineer, Proctor & Gamble Co., Ivorydale
 NELSON, SWEN W., Engineer, Bailey Meter Co., Cleveland
 REID, NEIL K., Draftsman, Alliance Machine Co., Alliance
 RICH, CLARENCE D., Mechanical Engineer, Owens Bottle Co., Toledo

STEVENS, FRANCIS E., Chief Engineer, Hydraulic Press Manufacturing Co., Mount Gillead
 VANCE, JOHN H., Superintendent of Power, The B. F. Goodrich Co., Akron

Oklahoma

BAKER, WRIGHT G., Okmulgee Producing & Refining Co., Sapulpa
 SCHOENWALD, OTTO H., General Plant Superintendent, Gulf Refining Co., Tulsa
 SHERMAN, ERIC W., Vice President, Sherman Machine & Iron Works, Oklahoma City

Oregon

BARNES, CLYDE E., Mechanical Engineer, Spokane, Portland & Seattle Railroad, Portland

Pennsylvania

BENJAMIN, ISRAEL, Instructor, Pennsylvania State College, State College
 BRADFIELD, EDMUND S., Instructor in Engineering, Swarthmore College, Swarthmore
 CROUCH, RAY C., Efficiency Engineer, Ritter-Conley Manufacturing Co., Leetsdale
 DACOSTA, JOHN C., 3rd, Boiler Engineer, Baldwin Locomotive Works, Philadelphia
 DILLON, EDWARD H. J., Manager, Philadelphia Office, Griscom-Russell Co., Philadelphia
 GERLITZKI, HARRY E., Armstrong Cork Co., Lancaster

GERSEN, FREDERICK C., Assistant Chief Draftsman, Ace Motor Corp., Philadelphia

GILBERT, CHARLES N., Mechanical Designer, Ace Motor Corp., Philadelphia

GULLAK, JOHN H., Cost Engineer, Merchant Shipbuilding Corp., Harriman

KLOTZ, EDGAR L., Mechanical Engineer, Fuller Lehigh Co., Fullerton

LASSMAN, BENJAMIN, Sales Engineer, Baker-Dunbar-Alien Co., Pittsburgh

LUKENS, WILLIAM H., Sales Engineer, Nelson Valve Co., Philadelphia

LYON, JAMES F., Representative, Brown & Sharpe Manufacturing Co., Pittsburgh

MILLS, FRANK H., Mechanical Draftsman, The Barrett Co., Frankford, Philadelphia

NASH, CARLETON B., Chief Draftsman, Maccar Truck Co., Scranton

PENMAN, WALTER R., Draftsman, Bethlehem Steel Co., Lebanon

PRICE, STEPHEN W., Mechanical Draftsman, The Barrett Co., Frankford, Philadelphia

REYES, HERMENEGRILDO B., Assistant Designer & Calculator, The Philadelphia Electric Co., Philadelphia

SMITH, HARRY A., Marine Engineer, Emergency Fleet Corp., Philadelphia

WEIHE, CLYDE R., Master Mechanic, Washington Coal & Coke Co., Star Junction

WEILAND, WALTER F., Instructor, University of Pittsburgh, Pittsburgh

Rhode Island

STOVER, CHARLES C., Vice President & Engineer, What Cheer & Hope Mutual Fire Insurance Co., Providence

WEEKS, CHARLES L., Resident Engineer, Files Engineering Co., Providence

Texas

AMES, GEORGE J., General Manager, Liberty Refining Co., Cisco

BYNUM, EDWIN A., Jr., Draftsman, Humble Oil & Refining Co., Cisco

HELMICK, WALTER E., Operating Engineer, U. S. Government Experiment Station, Petrolia

Washington

GRIESSE, VICTOR H., Consulting Engineer, Washington Water Power Co., Spokane

LINDSAY, ALEXANDER, Superintendent Water Division, City of Spokane, Spokane

POSPISIL, LOUIS J., Chief Draftsman, Washington Water Power Co., Spokane

SALLEE, HUBERT B., Instructor of Marine Engineering, University of Washington, Seattle

Wisconsin

FYKES, MITCHELL L., Assistant Mechanical Engineer, Bucyrus Co., So. Milwaukee

KRAFT, JOHN F., Assistant to Factory Manager, A. O. Smith Corp., Milwaukee

STUCKERT, FELIX J., Chief Draftsman, Briggs & Stratton Co., Milwaukee

WELSER, G. BRINTON, JR., Assistant Secretary, Chain Belt Co., Milwaukee

Canada

KEITH, GORDON C., Editor, The Canadian Manufacturer, Toronto

Brazil

SYLVAIN, CHARLES E. B., Textile Engineer, International Machinery Co., Rio de Janeiro

England

ROSS, ARCHIBALD C., Managing Director, Messrs. R. & W. Hawthorn, Leslie & Co., Newcastle-on-Tyne

Russia

VINOGRADOFF, DEMETRY I., Assistant Professor, Moscow Institute of Technology, Moscow

West Indies

SCHARNBERG, HERMAN J. B., Chief Mechanical & Electrical Engineer, Haitian American Corp., Port au Prince, Haiti

CHANGE OF GRADING
FROM ASSOCIATE-MEMBER

New York

TRAUDT, WILLIAM F., Vice President & General Manager, Taber Pump Co., Buffalo

Pennsylvania

MEHARG, LAURENCE, Power Engineer, Hazel Atlas Glass Co., Washington

Rhode Island

BRIGGS, LEROY E., Production Engineer, Gorham Manufacturing Co., Providence

PROMOTION FROM JUNIOR

Arizona

ROGERS, EDWIN A., Chief Engineer of Power Plant, New Cornelia Copper Co., Ajo

Connecticut

HERRICK, EDSON P., Factory Accountant & Assistant Production Manager, Colt's Fire Arms Co., Hartford

THOMAS, RAYMOND H., Draftsman, Birmingham Iron Foundry, Derby

New Jersey

ESHERICK, GEORGE, JR., Fuel Engineer, International Coal Corp., Newark

Pennsylvania

CHANCE, THOMAS M., Member of Firm, H. M. Chance & Co., Philadelphia

WIESE, OSCAR H., Engineer, Emergency Fleet Corp., Philadelphia

SUMMARY

New Applications 190

Applications for change of grading:

Promotion from Associate-Member 3

Promotion from Junior 6

Total 199

SUMMARY SHOWING AVERAGE AGE AND POSITIONS OF APPLICANTS ON BALLOT
CLOSING FEBRUARY 25, 1920

Average age of applicants:

Members 46

Associates 36

Associate-Members 31

Juniors 24

Captain 1

Chief Engineer 11

Consulting Engineers 6

Constructing Engineers 1

Designers 9

Designing Engineers 3

Aero Draftsman 1

Draftsmen 4

Chief Draftsmen 5

Mechanical Draftsmen 3

Engineers 12

Efficiency Engineers 2

Erecting Engineers 1

Electrical Engineer 1

Executives (Pres., Vice-Pres., Secy.-Treas., Mgrs.) 20

General Manager 1

Inspector 1

Master Mechanics 2

Mechanical Engineers 13

Asst. Mechanical Engineers 3

Plant Engineers 2

Professors 4

Sales Engineers 8

Sales Managers 3

Service Engineer 1

Superintendents 9

Supervising Engineers 1

Asst. Superintendents 6

Test Engineer 1

Supervisor 1

Miscellaneous 54